

## Drum and Croaker (Family Sciaenidae) Diversity in North Carolina

The waters along and off the coast are where you will find 18 of the 19 species within the Family Sciaenidae (Table 1) known from North Carolina. Until recently, the 19<sup>th</sup> species and the only truly freshwater species in this family, Freshwater Drum, was found approximately 420 miles WNW from Cape Hatteras in the French Broad River near Hot Springs.

**Table 1. Species of drums and croakers found in or along the coast of North Carolina.**

Scientific Name/ American Fisheries Society Accepted Common Name	Scientific Name/ American Fisheries Society Accepted Common Name
<i>Aplodinotus grunniens</i> – Freshwater Drum	<i>Menticirrhus saxatilis</i> – Northern Kingfish
<i>Bairdiella chrysoura</i> – Silver Perch	<i>Micropogonias undulatus</i> – Atlantic Croaker
<i>Cynoscion nebulosus</i> – Spotted Seatrout	<i>Pareques acuminatus</i> – High-hat
<i>Cynoscion nothus</i> – Silver Seatrout	<i>Pareques iwamotoi</i> – Blackbar Drum
<i>Cynoscion regalis</i> – Weakfish	<i>Pareques umbrosus</i> – Cubbyu
<i>Equetus lanceolatus</i> – Jackknife-fish	<i>Pogonias cromis</i> – Black Drum
<i>Larimus fasciatus</i> – Banded Drum	<i>Sciaenops ocellatus</i> – Red Drum
<i>Leiostomus xanthurus</i> – Spot	<i>Stellifer lanceolatus</i> – Star Drum
<i>Menticirrhus americanus</i> – Southern Kingfish	<i>Umbrina coroides</i> – Sand Drum
<i>Menticirrhus littoralis</i> – Gulf Kingfish	

With so many species historically so well-known to recreational and commercial fishermen, to lay people, and their availability in seafood markets, it is not surprising that these 19 species are known by many local and vernacular names. Skimming through the ETYFish Project (<https://etyfish.org/eupercaria/>), Kells and Carpenter (2011), Manooch (1984), and Smith (1907), these species traditionally answered or still answer when their names are called (Table 2).

**Table 2. Vernacular or colloquial names given to various species of drums and croakers.**

Scientific Name (American Fisheries Society Accepted Common Name)	Vernacular Name
<i>Aplodinotus grunniens</i> (Freshwater Drum)	Gasper-gou (pronounced gaspə(r)lǵü), Sheepshead
<i>Bairdiella chrysoura</i> (Silver Perch)	Perch (White, Sand, and Yellow-finned), Yellow-tail, and Silver Croaker
<i>Cynoscion</i> spp. (Spotted Seatrout, Silver Seatrout, and Weakfish)	Trout (Bastard, Speckled, Sea, Salmon, Black, Gray, Summer, Yellow-fined, Sun, and Shad), Gray Seatrout, Salmon, Weakfish (Spotted, Silver, and Gray), Squeteague (pronounced skwi- tēg, Southern, Spotted, and Silver), and Kingfish
<i>Equetus lanceolatus</i> (Jackknife-fish)	Ribbon-fish
<i>Larimus fasciatus</i> (Banded Drum)	Bullhead, Chub
<i>Leiostomus xanthurus</i> (Spot)	Jimmy, Chub, Roach, Goddy, Lafayette, Norfolk Spot
<i>Menticirrhus</i> spp. (Southern Kingfish, Gulf Kingfish, and Northern Kingfish)	Sea Mullet, Round-head, Sea Mink, Kingfish, Virginia Mullet, Whiting (Carolina, Gulf, Silver, and Surf), Barb, Hake, Rock-Fish, and Southern Kingcroaker
<i>Micropogon undulatus</i> (Atlantic Croaker)	Croaker, Crocus, Hard-head

Even Smith (1907) pined that: “*The common names of this species* [referring to *Cynoscion regalis*, Weakfish] *are numerous, and some of them are very improper*” and “*The local names applied to this species* [referring to *Cynoscion nebulosus*, Spotted Seatrout] *are indefensible, but will probably never be supplanted by appropriate ones*”. However to bring some semblance of order and stability to this cornucopia of regional jargon, the American Fisheries Society-accepted common names are perhaps less colorful, but more socially acceptable and scientifically standardized (Page et al. 2013) and each species has a scientific (Latin) name (Table 1; Appendix 1).

Except for Freshwater Drum, all the other species of drums and croakers are to be found along North Carolina’s coast. Silver Perch, Atlantic Croaker, and Red Drum occasionally stray into fresh waters (Tracy et al. 2020), but spend most of their lives in estuarine or marine waters. Spot is also primarily an estuarine species that may be found seasonally in freshwater habitats (Tracy et al. 2020).

Freshwater Drum is indigenous to the western Mountain river basins but currently only found in the French Broad basin. It was illegally introduced into the Roanoke basin, into John H. Kerr Reservoir, possibly as recently as the 1980s or 1990s. Anecdotal reports now document its occurrence in Lake Gaston and Roanoke Rapids Lake and within the Roanoke Rapids Dam bypass reach. More occurrences in the mainstem of the Roanoke River downstream from Roanoke Rapids Dam are to be expected into the future (Tracy et al. 2020). It has also been recently collected upstream from Kerr Reservoir in the Dan River at Milton in Caswell County (Kelsey Roberts, North Carolina Wildlife Resources Commission, pers. comm.).

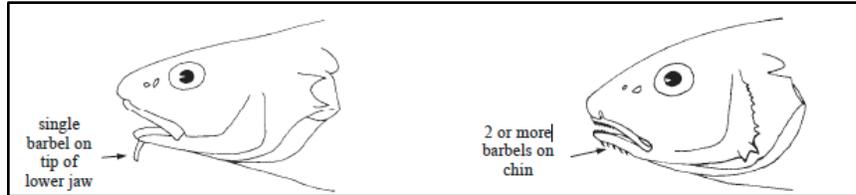
Croakers and drums vary greatly in size from the petite Star Drum at about 200 mm (8 inches) to almost a whopping 1700 mm (5.6 feet) for Black Drum. Their occupied habitats are also variable, depending upon the species from nearshore, shallow beaches and the surf zones, to seagrass beds in estuaries, to off shore deep reefs and hard bottoms, to inlets and near river mouths. They may be found over shallow hard or soft sandy and muddy bottoms or in tide pools (Kells and Carpenter 2011). Most species inhabit shallow waters, but Jackknife-fish and Spot can be found to depths of 200 feet, Banded Drum to 320 feet, and Blackbar Drum and Cubbyu to about 600 feet (Kells and Carpenter 2011). As mentioned previously, Freshwater Drum, as its name implies is found exclusively in fresh water. In the French Broad River basin it is found in the mainstem of the French Broad River where there are some backwaters and slower currents. It is also an introduced inhabitant of some of the major reservoirs along the Roanoke River and in the future, downstream (Tracy et al. 2020).

Freshwater Drum is the species in the family that is state-listed; it is a Special Concern species. None of the species is a federally-listed species (NCAC 2017; NCNHP 2020; NCWRC 2017). The recreational and commercial harvesting (take) of Red Drum, Weakfish, Spotted Seatrout, and Black Drum are state regulated by the North Carolina Division of Marine Fisheries and the North Carolina Wildlife Resources Commission (NCDMF 2020; NCWRC 2020a).

The identification of drums and croakers is relatively straight-forward. Key characteristics for their proper identification include the presence (and number) or absence of chin barbels, breast and dorsal fin scalation pattern, length of spinous dorsal fin, body coloration and striping, size of mouth, and the presence or absence of canine teeth.

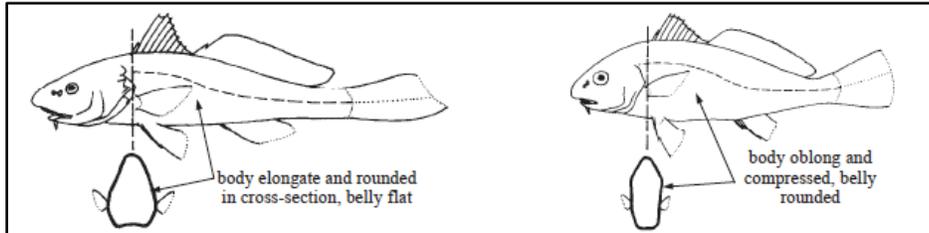
**Identification Key to the Freshwater and Marine Species of Drums and Croakers (Family Sciaenidae) in North Carolina**

- 1a. Chin or underside of lower jaw with barbel .....2
- 1b. Chin without barbel.....7
- 2a. A single barbel on tip of lower jaw (Figure 1) .....3
- 2b. Two or more barbels on chin or in paired series along median edges of lower jaw (Figure 1) .....6



**Figure 1. Examples of the number and placement of barbels in the Family Sciaenidae. Illustrations courtesy of Chao (2002).**

- 3a. Body elongate and rounded in cross-section, belly flat (Figure 2). Anal fin with 1 short spine .....4
- 3b. Body oblong and compressed, belly rounded (Figures 2 and 3). Anal fin with 2 spines .....  
 ..... Sand Drum, [Umbrina coroides](#)



**Figure 2. Left- Body shape in *Menticirrhus* sp.; Right – Body shape in *Umbrina*. Illustrations courtesy of Chao (2002).**



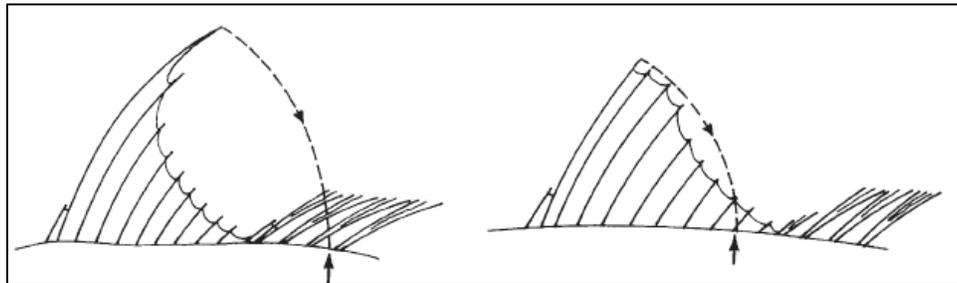
**Figure 3. Sand Drum. Photograph courtesy of the Smithsonian Tropical Research Institute’s Shorefishes of the Greater Caribbean online information system, <https://biogeodb.stri.si.edu/caribbean/en/pages/random/7097>, accessed January 31, 2021.**

- 4a. Breast scales (below pectoral-fin base and pelvic-fin origin) much smaller than those along lateral line (Figure 4). Body uniformly silver (Figure 4). Pectoral fin short, usually not reaching to tip of pelvic fin ..... Gulf Kingfish, [Menticirrhus littoralis](#)
- 4b. Breast scales not much reduced in size. Body silvery grey with dark oblique bars on sides. Pectoral fin longer, reaching to or beyond tip of pelvic fin.....5



**Figure 4. Left - Breast scales in Gulf Kingfish.; Right – Gulf Kingfish. Illustration courtesy of Chao (2002).**

- 5a. Spinous dorsal fin high, when depressed back, its tip reaching beyond base of fourth soft dorsal-fin ray (Figure 5). Side with 7 or 8 distinct oblique bars, second and third bars form a V below spinous dorsal fin. A dusky colored stripe connecting the eyes; a longitudinal stripe below lateral line extending to tip of caudal fin (Figure 6). Anal-fin rays usually 8 (7-9) ..... Northern Kingfish, [Menticirrhus saxatilis](#)
- 5b. Spinous dorsal fin lower, when depressed back not reaching to base of second soft ray (Figure 5). Side with 8 or 9 diffused saddle-like bars or dark blotches, second and third bars form a faint V below nape and spinous dorsal fin. No stripes connecting eyes or below lateral line (Figure 6). Anal-fin rays usually 7 (6-8) ..... Southern Kingfish, [Menticirrhus americanus](#)



**Figure 5. Spinous dorsal fins. Left – Northern Kingfish; Right – Southern Kingfish. Illustrations courtesy of Chao (2002).**



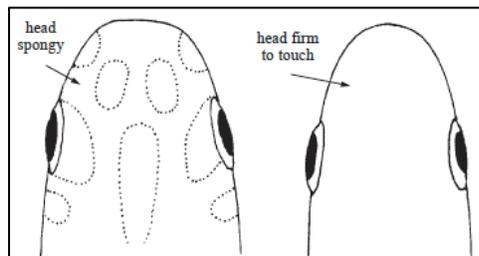
**Figure 6. Left - Northern Kingfish; Right – Southern Kingfish.**

- 6a. Barbels in series of 3-5 pairs along median margins of lower jaw. Preopercular margin strongly serrate. Side with series of small spots forming oblique wavy lines along transverse scale rows or scattered on back in reticulate pattern (Figure 7) ..... Atlantic Croaker, [Micropogonias undulatus](#)
- 6b. Barbels in series of 10-13 pairs along median margins of lower jaw and subopercles. Preopercular margin smooth. Silvery grey to very dark, young with 4 or 5 black vertical bars on sides, disappearing with growth; pelvic and anal fins usually dark (Figure 7) ..... Black Drum, [Pogonias cromis](#)

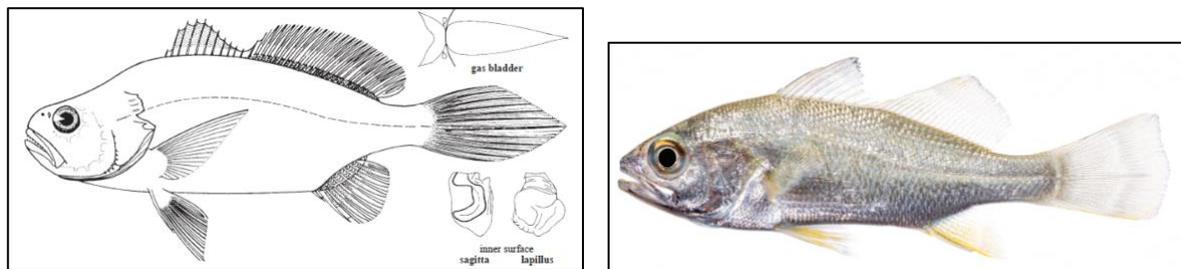


**Figure 7. Left – Atlantic Croaker; Right – Black Drum.**

- 7a. Preopercle serrate often with 1 or more distinct bony spines at angle or prominent serration on posterior margin .....8
- 7b. Preopercle smooth or slightly denticulate or ciliate, never with strong bony spine or serration in adult .....9
- 8a. Head broad, top cavernous, often translucent under skin, hollow or spongy to touch (Figure 8). Interorbital width going less than 3.5 times into head length. Tail pointed, lanceolate (Figure 9) ..... Star Drum, [Stellifer lanceolatus](#)
- 8b. Head narrower, top cavernous, but usually not translucent under skin, firm to touch (Figure 8). Interorbital width going 3.5 times or more into head length (Figure 9). Tail rounded or nearly so (Figure 9) ..... Silver Perch, [Bairdiella chrysoura](#)

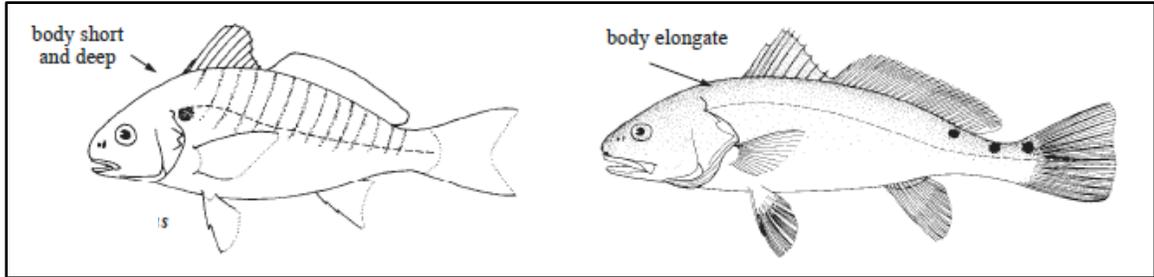


**Figure 8. Dorsal view of the head. Left – Star Drum; Right – Silver Perch. Illustrations courtesy of Chao (2002).**



**Figure 9. Left – Star Drum; Right – Silver Perch. Illustration courtesy of Chao (2002).**

- 9a. Mouth small, inferior, snout projecting in front of upper jaw ..... 10
- 9b. Mouth moderate to large, horizontal to strongly oblique, terminal or lower jaw projecting in front of upper jaw ..... 16
- 10a. Body short and deep, dorsal profile strongly elevated or arched on nape; body depth going less than 3.5 times into Standard Length (Figure 10) ..... 11
- 10b. Body elongate, dorsal profile not strongly elevated or arched on nape; body depth going more than 4 times into Standard Length (Figures 10 and 11) .....Red Drum, [Sciaenops ocellatus](#)



**Figure 10. Left – Body depth short and deep as in Spot; Right – Body elongate in Red Drum. Illustrations courtesy of Chao (2002).**



**Figure 11. Red Drum.**

- 11a. Body uniformly silvery, darker dorsally (Figure 12). Lower pharyngeal tooth plates fused into a single triangular plate (fresh water) ..... Freshwater Drum, [Aplodinotus grunniens](#)
- 11b. Body with spots, bars or stripes. Lower pharyngeal tooth plates not fused ..... 12



**Figure 12. Freshwater Drum. Photograph courtesy of the North American Native Fishes Association.**

12a. Body dark silvery to brownish with conspicuous longitudinal stripes, or broad oblique bars on head and flank. Soft dorsal-fin rays 35 or more. Less than 20 gill rakers on first arch ..... 13

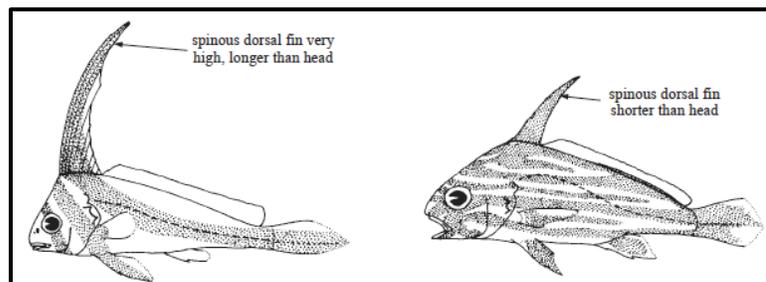
12b. A dark humeral spot behind upper end of gill slit (Figure 13). Body silvery with narrow oblique stripes along transverse scale rows. Soft dorsal-fin rays 28-33. 30-36 gill rakers on first arch .....  
..... Spot, [Leiostomus xanthurus](#)



**Figure 13. Spot.**

13a. Spinous dorsal fin very high, longer than head (Figures 14 and 15). Sides with 3 dark oblique bars, 2 on head, 1 from spinous dorsal fin obliquely extends to caudal fin (Figure 15) .....  
..... Jackknife-fish, [Equetus lanceolatus](#)

13b. Spinous dorsal fin not as high, much shorter than head (Figure 14). Sides with dark longitudinal stripes or diffused dark saddle-like bar on head (Figure 14) ..... 14



**Figure 14. Spinous dorsal fins and lateral striping. Left - *Equetus*; Right - *Pareques* sp. Illustrations courtesy of Chao (2002).**



**Figure 15. Jackknife-fish. Photograph courtesy of NOAA Fisheries, Panama City Laboratory, FL.**

- 14a. Side with a broad oblique bar from base of spinous dorsal fin to pelvic fins; 1 longitudinal stripe on midline reaching to tip of caudal fin (Figure 16). Large adults may be darkly pigmented, obscuring the oblique bar and longitudinal strip (Figure 17) ..... Blackbar Drum, [Pareques iwamotoi](#)
- 14b. Side with several longitudinal stripes, no oblique bar ..... 15



**Figure 16. Blackbar Drum.** 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/5162>, accessed January 31, 2021.



**Figure 17. Adult Blackbar Drum.**

- 15a. Side with 3 to 5 broad longitudinal bands, wider than pupil, with narrower stripes in between (Figure 18); young with a straight dark bar connecting eyes across top of head, diffused in adult. Spinous dorsal fin when pressed against back, its tip reaching base of sixth soft dorsal-fin ray ..... High-hat, [Pareques acuminatus](#)
- 15b. Side with 7 to 10 narrow longitudinal stripes, narrower than pupil (Figure 19); young with a V-shaped dark bar connecting eyes across nape, diffused in adult. Spinous dorsal fin, when depressed against back, its tip not reaching to base of fourth soft dorsal-fin ray ..... Cubbyu, [Pareques umbrosus](#)



Figure 18. High-hat. 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/5158>, accessed January 31, 2021.



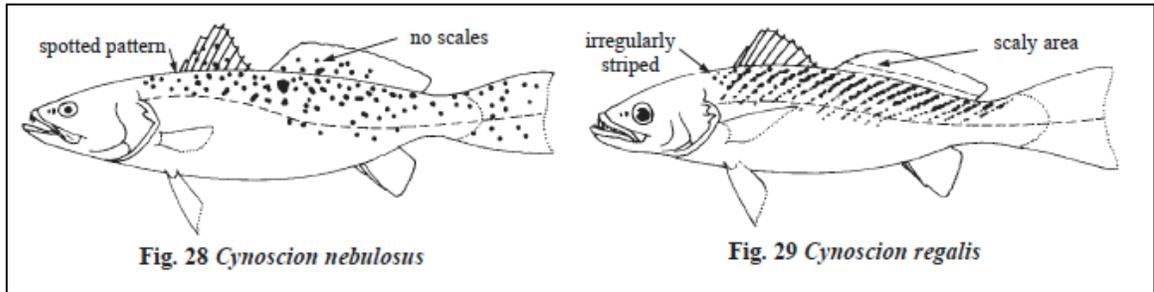
Figure 19. Cubbyu. Photograph courtesy of NOAA Fisheries, Panama City Laboratory, FL.

- 16a. Body elongated. Pair of large canine-like teeth present on tip of upper jaw. Anal spines short and weak, less than 1/4 of first soft ray height ..... 17
- 16b. Body oblong (Figure 20). Without large canine on tip of upper jaw. Second anal spine sharp, more than 1/2 of first ray height..... Banded Drum, [Larimus fasciatus](#)



Figure 20. Banded Drum.

- 17a. Back with distinct black spots scattered randomly on dorsal and caudal fins (Figures 21 and 22). Soft dorsal fin unscaled. Pectoral fin shorter than pelvic fin ..... Spotted Seatrout, [\*Cynoscion nebulosus\*](#)
- 17b. Back with numerous small spots forming oblique and undulating lines, usually not extending to dorsal or caudal fins (Figure 21). Soft dorsal partially scaled. Pectoral fin slightly longer than pelvic fin ..... 18

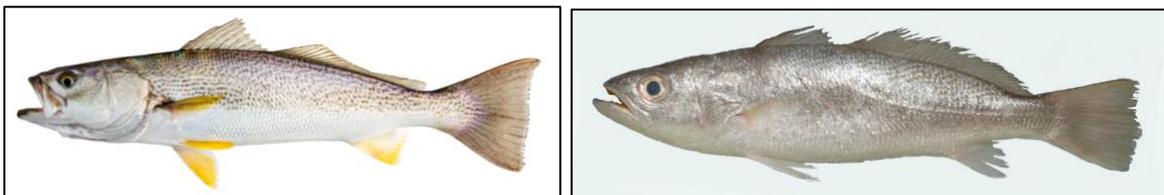


**Figure 21. Left – Soft dorsal fin without scales and spotted pattern in Spotted Seatrout; Right – Soft dorsal fin partially scaled and irregularly striped pattern in Weakfish. Illustrations courtesy of Chao (2002).**



**Figure 22. Spotted Seatrout.**

- 18a. Dotted stripes on trunk irregular or reticulated (Figure 23). Paired fins yellow (Figure 23). Anal fin with 11-13 soft rays .....Weakfish, [\*Cynoscion regalis\*](#)
- 18b. Dotted stripes on trunk run on oblique scale rows (Figure 23). Paired fins white (Figure 23). Anal fin with 8-10 soft rays .....Silver Seatrout, [\*Cynoscion nothus\*](#)



**Figure 23. Left – Weakfish; Right – Silver Seatrout.**