

Tomtate*Haemulon aurolineatum*

Contributor (2014): Paulette Mikell (SCDNR)

DESCRIPTION

<http://safmc.net/FishIDandRegs/FishGallery/Tomtate>

Taxonomy and basic description

The tomtate is a small member of the grunt family, Haemulidae, and inhabits seagrass beds, sand flats, and live bottom reefs. The species forms schools and feeds on small invertebrates, plankton, and algae. Tomtate are not commercially important but continue to be a valuable prey species to the snapper-grouper complex.

According to Arnov (1952), Courtenay (1961), and Courtenay and Sahlman (1978), “the tomtate is described as having an oblong body, compressed, perch-like; head profile strongly convex; chin with 2 pores anteriorly and a central groove behind the symphysis of the lower jaw; teeth conical, in a narrow band in each jaw, the outer series enlarged, but no canines; no teeth on roof of mouth; posterior margin of suborbital not exposed; preopercle with posterior margin slightly concave and rather finely serrate, none of the serrae directed forward; opercle with 1 distinct spine; dorsal fin single, usually with 12 or 13 strong spines and 12-18 soft rays; pectoral fins long; pelvic fins below base of pectoral fins, with 1 spine and 5 soft rays; anal fin with 3 strong spines and fewer than 11 soft rays; soft dorsal and anal fins densely scaled to their margins ; caudal fin forked; scales ctenoid, small to moderate, extending onto entire head (except front of snout, lips, and chin); mouth usually red within.”

Additional descriptions come from Courtney (1961) and Bohlke and Chaplin (1968): “Body coloration silvery white and head dusky grayish brown; yellow to bronze midlateral stripe extends length of body from behind opercle to base of caudal fin; large dark brown or black spot present at base of caudal fin; mouth red within; peritoneum black.”

See Table 1 for morphometric and meristic data for the tomtate.

Table 1. Morphometric and meristic data for *Haemulon aurolineatum*

	Courtney (1961)		Herculano Soares and de Holanda Lima (1966, 1967)	
	Range	Mode	Range	Mode
Predorsal distance (% SL)	37-43	40		
Precanal distance (% SL)	67-74	70		
Body depth (% SL)	27-38	34		
Head length (% SL)	32-38	36	34.5-38.6	
Snout length (% SL)	11-17	13		
Length of upper jaw (% SL)				
No. dorsal rays	14-16	15	14-15	15
No. anal rays	7-9	9	9	9
No. pectoral rays	16-18	17	17-18	18
Scales above lateral line	6	6	6-7	6
Scales below lateral line	11-13	12	10-13	11
Scales around caudal peduncle	22	22	20-23	22
Total lateral line scales	49-52	50,51	47-51	49
Total gill rakers	24-28	26,27	26-28	27

Status

In recent years, tomtate have not been important in either the commercial or most recreational fisheries, although it is one of several species that the headboat fishery has depended upon as a “stringer-filler” (large catch).¹ Despite heavy fishing in reef areas, which may result in reduced catches of more desirable species, tomtate may still be caught in sufficient numbers to satisfy customers. Currently, a limited access permit is required for commercial catches of tomtate; however, no limits remain for recreational anglers (SAFMC 2014). Tomtate landings data (commercial and recreational) are included in the category of “mixed grunts” including white grunt, margate, and sailor’s choice leaving this data with little value at the species level. During 2013, the commercial annual catch limit (ACL) was 218,539 lbs., of which <3% had been exploited (see http://sero.nmfs.noaa.gov/sustainable_fisheries/acl_monitoring/commercial_sa/index.html). The recreational ACL was 588,113 lbs., of which 224,186 lbs. (38%) was reported landed (see http://sero.nmfs.noaa.gov/sustainable_fisheries/acl_monitoring/recreational_sa/index.html).

POPULATION SIZE AND DISTRIBUTION

The tomtate, *Haemulon aurolineatum*, is a small grunt (Haemulidae) occurring from Cape Cod, Massachusetts, to Brazil, including the Caribbean, Gulf of Mexico, and Central American coast (Courtenay 1961). Due to its small size, tomtate is not considered

¹ Robert Dixon, pers. comm. NCDOC, NOAA, NOS/NMFS Center for Coastal Fisheries and Habitat Research 101 Pivers Island Road Beaufort, NC 28516

an economically important species in the United States, although a directed trawl fishery did exist in the Yucatan (Sauskan and Olaechea 1974). Despite being an abundant and ecologically important species, little research has been conducted on the tomtate's life history (Darcy 1983).

HABITAT AND NATURAL COMMUNITY REQUIREMENTS

Tomtate contribute to the ecosystem of the SAB due to their abundance within the region as juveniles and adults, both of which are prey species of the snapper/grouper assemblage (Darcy 1983; Wenner 1983). Tomtate not only share reef and rocky outcrop habitat with many other commercially and recreationally important reef fishes, but also transport nutrients. Associated reef species include porgy (*Pagrus pagrus*), white grunt (*Haemulon plumeri*), beeliner (*Rhomboplites aurorubens*), gag (*Mycteroperca microlepis*), and scamp (*Mycteroperca phenax*) (Sedberry 1985). Tomtate remain on the reefs during the day but move off the reefs to feed at night (Ogden and Ehrlich 1977), potentially enhancing the productivity of the reef (Hastings et al. 1976).

Fishery-independent data collected by the South Carolina Department of Natural Resources (SCDNR) during the Marine Resources Monitoring, Assessment and Prediction program (MARMAP) reef fish survey reported that tomtate were widely distributed at mid-shelf depths (19-55 m) and not as common at shallower and deeper depths. Findings also revealed that gonochoristic females were in spawning condition from March through July, with peak spawning during April through June. Gonochoristic male tomtate in spawning condition were collected throughout the year with peak spawning period corresponding to the female spawning season (March through July). The greatest percentages of resting males (no spermatogenesis occurring) were found between September and January. Hydration of oocytes occurred primarily during the afternoon, suggesting that spawning takes place in the late afternoon and into the early evening (Mikell et al. 2006, unpublished data).

The existence of schools of juvenile tomtate (<75 mm FL) over artificial and natural reefs, as observed by Grays Reef National Marine Sanctuary SCUBA divers off Georgia during much of the year, suggests the ecological importance of the species as part of the forage base for both piscivorous reef fishes and coastal pelagic species. The abundance of juvenile tomtate and its position in the food web might lead one to believe that they are short-lived and grow rapidly. The classification of tomtate as relatively short-lived, fast growing reef fish (Manooch and Barans 1982) is contrary to MARMAP findings; tomtate share characteristics of slow growth and relatively long lives (17 years in this study) with many other large, long-lived snappers and groupers, many of which have managed fisheries.

MARMAP's reef fish survey data indicate a gradual decline in abundance of tomtate in the Southeast region between the early 1990s and mid-2000 (Figure 1). However, population abundance seems to have since leveled. As tomtate are reportedly not targeted by fisheries, this decline may indicate changes in community structure of reef fishes in the region.

South Atlantic Bight

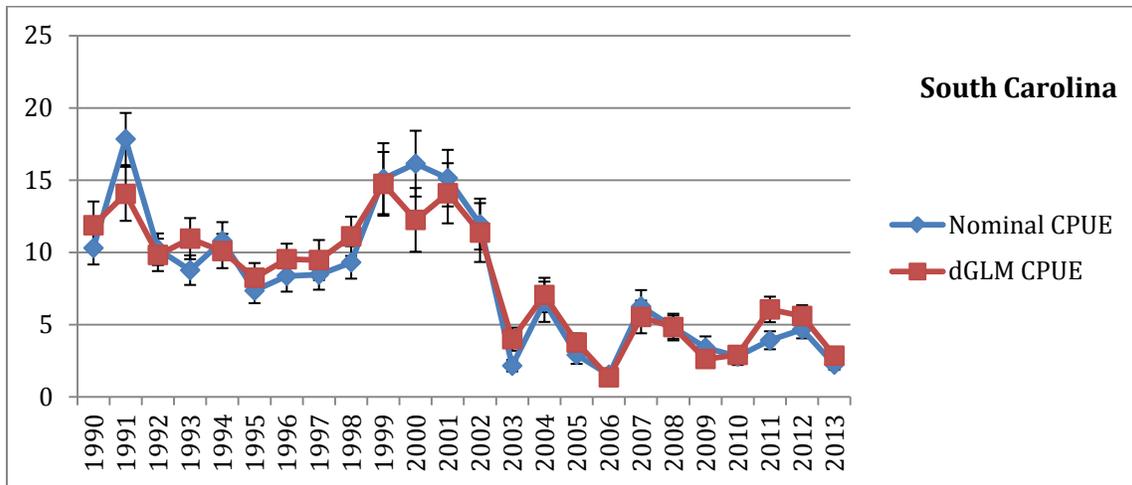
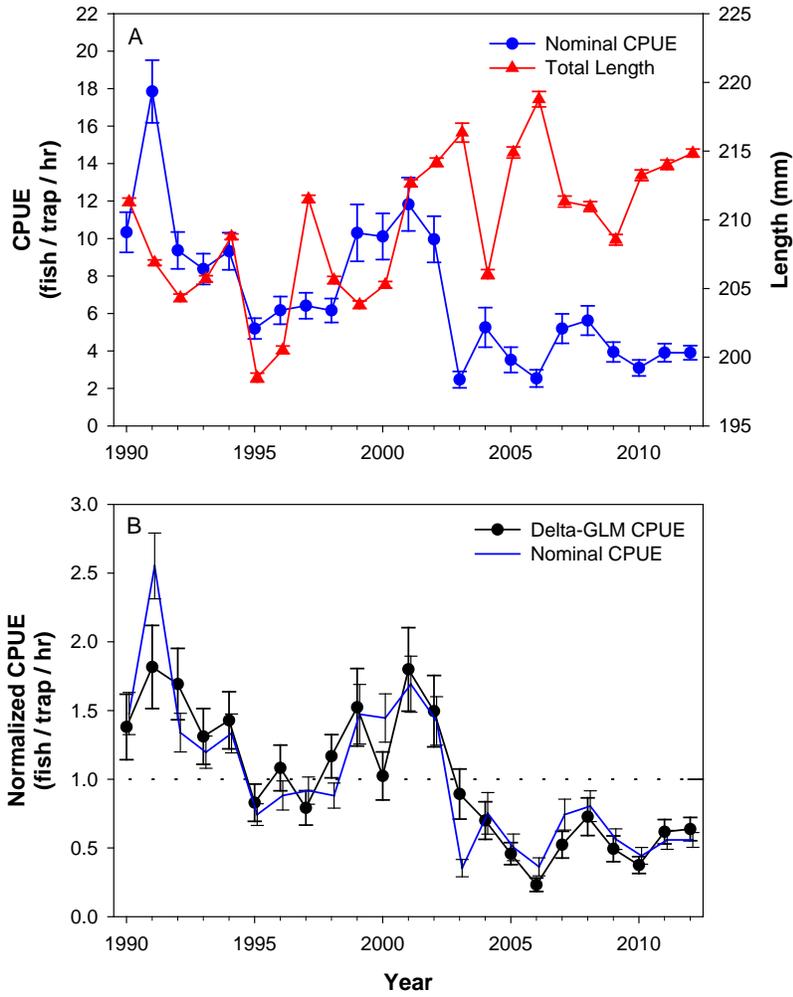


Figure 1. Catch per unit effort (CPUE, fish/trap/hour) of tomtate collected during MARMAP surveys off the Southeastern US from 1990 – 2013.

CHALLENGES

Just as in South Carolina waters, there are several challenges for management of tomtate in the region. This species has not undergone a formal stock assessment in this region so stock status is unknown. However, an assessment as part of the National Marine Fisheries Service (NMFS) – Virginia Tech (VT) Population Dynamics Recruiting Program (2010) indicated tomtate may be overfished and could be experiencing overfishing (NOAA Technical Memorandum NMFS-SEFSC-617). A possible shift to targeting this species by recreational and commercial fisheries as densities of other species decline may affect tomtate abundance. Monitoring and estimating landings and by-catch of tomtate is important in understanding the effects of harvest on species populations and reef fish community structure as a whole. In addition, little is known about the early life history, possibly complicating effective management strategies.

CONSERVATION ACCOMPLISHMENTS

The establishment of artificial reefs and Marine Protected Areas may have benefited tomtate populations as they have increased suitable habitat and protected a section of the population against harvest.

CONSERVATION RECOMMENDATIONS

- Monitoring of landings, relative densities, and by-catch of tomtate, especially in the snapper/grouper fishery.
- Studies of the early life history of tomtate.

MEASURES OF SUCCESS

No tangible measures of success have yet been reported. Fulfillment of the above mentioned recommendations will constitute successes.

LITERATURE CITED

Arnov, B. 1952. A preliminary review of the western North Atlantic fishes of the genus *Haemulon*. Bulletin of Marine Science of the Gulf of Caribbean 2: 414-437.

Bohlke, J. E., and C. C. G. Chaplin. 1968. Fishes of the Bahamas and adjacent tropical waters. Livingston Publishing Co., Wynnewood, Pa., 771 p.

Courtenay, W. R., Jr. 1961. Western Atlantic fishes of the genus *Haemulon* (Pomadasyidae): systematic status and juvenile pigmentation. Bulletin of Marine Science of the Gulf and Caribbean 11(1): 66-149.

Courtenay, W. R., Jr. and H. F. Sahlman. 1978. Pomadasyidae. In W. Fischer (editor). *FAO species identification sheets for fishery purposes. Western Central Atlantic (Fishing Area 31)*. Vol 4, unpaginated. FAO Rome.

Darcy, G. H. 1983. Synopsis of biological data on the grunts *Haemulon aurolineatum* and *H. plumeri* (Pisces: Haemulidae). NOAA Technical Report, NMFS Circular 448, FAO Fisheries Synopsis 133:37 pp.

Herculano Soares, L. and H. de Holanda Lima. 1966. Sobre a biometria da xira, *Haemulon aurolineatum* Cuvier, da costa do estado do Ceará. *Bol. Inst. Biology Marine University Fed. Rio Grande do Norte*. 3:39-52.

Hastings, R. W., L. H. Ogren and M. T. Mabry. 1976. Observations on the fish fauna associated with offshore platforms in the northeastern Gulf of Mexico. *Fisheries Bulletin* 74:387-402.

Mikell, P. P., J. A. Stephen, C. A. Barans, and Patrick J. Harris. 2006. Age, growth, and reproduction of a critical foraging prey species in the South Atlantic Bight: tomtate (*Haemulon aurolineatum*).

NOAA Technical Memorandum NMFS-SEFSC-617: Exploratory assessment of four stocks in the U.S. south Atlantic: bank sea bass, gray triggerfish, sand perch, and tomtate by Molly Broome, Danielle Claar, Elizabeth Hamman, Toby Matthews, Miguel Salazar, Katelin Shugart-Schmidt, Amy Tillman, Matthew Vincent, and Jim Berkson, 133 p., June 2011.

Ogden, J. C., and P. R. Ehrlich. 1977. The Behavior of Heterotypic Resting Schools of Juvenile Grunts (Pomadasyidae). *Marine Biology* 42:273-280.

Sauskan, V. I. and A. Olaechea. 1974. Biology and population abundance of the tomtate (*Haemulon aurolineatum*, Cuvier and Valenciennes, 1830, Pomadasyidae, Perciformes) on Campeche Bank. [In Russ.] In A. S. Bogdanov (editor), *Sovetsko-Kubinskiye ryb. Issled [Soviet-Cuban fishery investigations]*, No. 4, p. 135-150. Moscow.

Sedberry, G. R. 1985. Food and feeding of the tomtate, *Haemulon aurolineatum* (Pisces, Haemulidae), in the South Atlantic Bight. *Fisheries Bulletin* 83 (3):461-466.

Wenner, C. A. 1983. Species associations and day-night variability of trawl-caught fishes from the inshore sponge-coral habitat, South Atlantic Bight. *Fisheries Bulletin* 81(3):537-552.