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SEASONAL OCCURRENCE OF BLACK DRUM, *Pogonias cromis*, AND RED DRUM, *Sciaenops ocellatus*, OFF TEXAS¹

The black drum, *Pogonias cromis*, and red drum, *Sciaenops ocellatus*, are important recreational and commercial fishes commonly captured on the Atlantic coast of the United States from Virginia to Key West, Florida and along the Gulf of Mexico (Gulf) to at least northern Mexico (Yokel, 1966; Silverman, 1979; Matlock, 1980). The literature describes various aspects of the life history of both species, but their winter distribution has not been well defined.

This paper provides data on the seasonal occurrence and distribution of black drum and red drum off Texas.

METHODS

Monthly or twice monthly cruises were made in the Gulf off Freeport, Texas from October 1977 through August 1981. Trawl stations were located across a bathymetric transect of 5 to 100 m including: 1) one station each in 5, 9, 13, 18, 24, 27, 36, 47, 55, 64, 73, 82, 86 and 100 m; 2) four to six stations in 16 m and 3) 10-12 stations in 22 m (Figure 1). Two trawl tows of ten minutes bottom time were made at each station at approximately 2.75 knots. Collections were made from a commercial shrimp trawler utilizing a 10.4 m double rigged trawl with tickler chains and 4.4 cm stretch mesh in the cod end.

Red drum were also caught on rod and reel using either whole squid or mantis shrimp, *Squilla empusa*.

RESULTS

Fifty-eight black drum (221-991 mm TL) were captured, including catches during each month of the year except July and October (Table 1; Figure 1). Black drum occurred in the deepest waters (27 m) in January, February and March. They appeared most widely distributed (5-27 m) and frequently captured in March. Black drum were captured in 5-16 m during April, May and June. They were infrequently captured from July through November, which corresponds with their movements into passes and summer-early autumn residence in lagoons and bays (Simmons and Breuer, 1962).

Data on gonadal condition were noted only for black drum captured in March, April and June. In March,

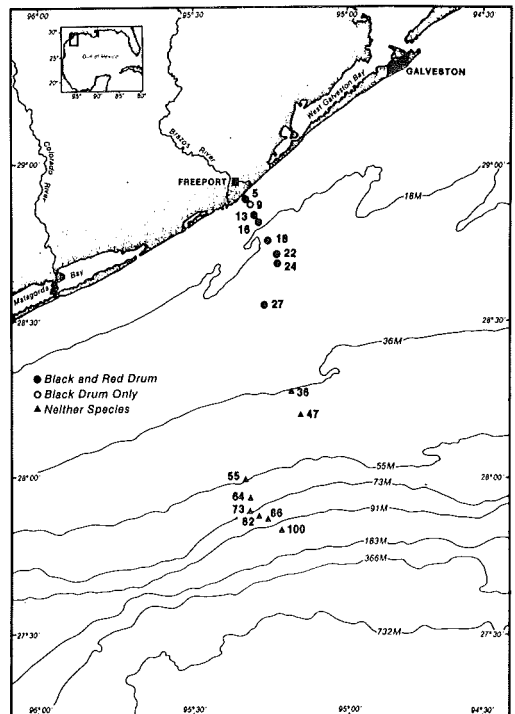


Figure 1. Station locations and depths (m) off Freeport, Texas. Stations where black drum, black drum and red drum or neither species were captured are indicated.

¹Technical article from TA 18022 the Texas Agricultural Experiment Station

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Table 1. Black drum captured in the Gulf of Mexico off Freeport, Texas, October 177 through August 1981; TL provided in mm (NM = not measured); Gonad Condition: I = immature, II = Spent-Resting, III = Early Developing, IV = Well Developed, V = Running Ripe.

	Total	5 Meters	9 Meters	13-16 Meters	18-24 Meters	27 Meters
Jan.	1					740
Feb.	4				602	469, 742, 1 NM
March	11	740 ♀ IV; 895	725, 813, 889	685, 873 ♀ IV	572	506 ♂ I; 576 ♀ III; 680 ♂ V
April	8	771 ♀ IV; 991 ♀ IV	805	659 ♀ IV; 665, 676, 687, 696 ♀ IV		
May	2	221		808		
June	24			12 NM; 12 (548-788, 7 ♀ II, 3 ♂ II, 2 III)		
July	0					
Aug.	1		244			
Sept.	1			1 NM		
Oct.	0					
Nov.	1				441	
Dec.	5	910			677, 696, 700 1 NM	

well developed females were captured in 5, 16, and 27 m, and a ripe male in 27 m. In June the 12 fish examined included: 1) seven spent/resting females, 2) two early developing females, and 3) three resting males.

We captured 16 adult red drum (808-1050 mm TL) during late autumn, winter and early spring (Table 2; Figure 1). Most red drum occurred in 13-22 m (88%) in March and April. The earliest capture was 3 November in 14 m which corresponds to the latter portion

of their spawning period (Pearson, 1929; Simmons and Breuer, 1962). The greatest depth of capture was in 27 m in March, the latest and shallowest capture was 20 April in 5 m. Generally only one red drum was captured during a cruise. The exception was on 3 April when five fish (850-1000 mm TL) were landed within a two hour period on rod and reel in 22 m; all had guts full of benthic crustaceans. Gonads were only inspected in fish captured in March and April and were all (n=8) inactive

Table 2. Red drum captured in the Gulf of Mexico off Freeport, Texas, October 1977 through August 1981; TL provided in mm (NM = not measured); Gonad Condition: I = immature, II = Spent-Resting, III = Early Developing, IV = Well Developed, V = Running Ripe.

	Total	5 Meters	9 Meters	13-16 Meters	18-24 Meters	27 Meters
Jan.	1			996		
Feb.	1				899	
March	4				808, 918, 1050 ♂ II	867 ♀ II
April	8	1035			883 II; 6 (850-1000), resting gonads	
May	0					
June	0					
July	0					
Aug.	0					
Sept.	0					
Oct.	0					
Nov.	1			979,		
Dec.	1				1 NM;	

gonadogenically.

DISCUSSION

We feel that black drum and red drum occur in the offshore waters (5-27 m) of the Gulf more frequently than is indicated by the literature.

Our data suggest a persistent recurrence of black drum in 5-27 m from December to June off Texas. Cody *et al.* (1978) caught black drum in the Gulf off Texas from November through April in 5-37 m with greatest catches in 15-24 m. Chittenden and McEachran (unpublished data) captured 38 black drum in 18 m in one day off Freeport in mid-January. Black drum have also been reported occasionally caught offshore of Texas (Pearson, 1929; Simmons and Breuer, 1962), Louisiana (Franks *et al.* 1972), the Southeast coast of the United States (Struhsaker, 1969), and South Carolina (12-16 m; January-March; C. Wenner, pers. comm.).

Our limited data suggest a persistent occurrence of adult red drum in offshore waters during winter. The presence of red drum in offshore waters during winter-early spring has also been observed 0-25 km off Mississippi barrier islands (Rohr, 1968), 20 km off Texas (Simmons and Breuer, 1962), in 48-70 m off Port Aransas, Texas (Heffernan, 1974) and off South Carolina in 13-26 m (C. Wenner, South Carolina Marine Resources Center, South Carolina Wildlife and Marine Resources Dept., Charleston, SC 29412, pers. comm.). Cody *et al.* (1978) found adult red drum from October through June in 7-27 m off Texas and Chittenden and McEachran (unpublished data) captured three large red drum (avg. wt.=12.7 kg; approx. 950 mm SL, L-W curve of Boothby and Avault, 1979) in 18 m off Freeport in mid-January 1974. Reports

from fishermen to the senior author described the occurrence of hundreds of large (15+ kg) red drum floating off Cape Hatteras, North Carolina during the winter of 1981-1982, the result of their capture by trawlers in approximately 40 m, and subsequent release due to possession limits. The offshore appearance of gonadogenically inactive adult red drum follows their reported fall-winter inshore spawning (Pearson, 1929; Gunter, 1945; Simmons and Breuer, 1962; Yokel, 1965) and probably serves to maintain segregation of adults and juveniles during winter months. It is important to note that in four years and 2,880 trawl tows, no red drum less than 800 mm TL were captured, an indication that offshore waters are not used by young fish as nurseries.

Spawning by black drum in the offshore Gulf could be suggested by the well developed gonads we observed in fish captured in 5-27 m in March and April, however, it is unclear how far these fish move before spawning.

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