

## A Key to the Snooks, Genus *Centropomus* (Centropomidae)

Reeve M. Bailey

In studying inland fishes of Guatemala, I was involved in identification of snooks and in 1978 compiled a provisional key utilizing specimens and the works of Regan (1906-1908), Meek and Hildebrand (1925), Chavez (1961), Rivas (1962), Fraser (1968), and Greenfield (1975). Of the 12 species of *Centropomus* currently recognized (Rivas, 1986), eight have been reported from Guatemala, four on each coast. *C. poeyi* and *C. mexicanus* are not known to occur along the Caribbean Coast of Central America. In the Pacific *C. unionensis* is known north to Union Bay, El Salvador (Rivas, 1986) but Hiyama (1937:37, pl. 20) illustrated a specimen in color from Mexico that appears to be *C. unionensis*. Castro-Aguirre (199—, in press and pers. comm.) confirms its presence in Mexico from specimens from Oaxaca and the Gulf of California at Bahia de La Paz, Baja California Sur and Laguna Santa Maria y Altata, Sinaloa. It probably lives also in Guatemala. *C. armatus* has been reported from **Mazatlán**, Mexico, and Punta Arenas, Costa Rica, but not from intervening localities, where it probably occurs. All 12 species are now known to occur in Mexico. Thus, the key was expanded to include all species.

*Centropomus* (Centropomidae) consists of tropical and subtropical fishes of the New World. They are essentially coastwise and estuarine, probably all at least occasionally enter fresh water, but appear not to remain permanently in inland waters. The twelve species include three (possibly four) transisthmian pairs:

	<u>Atlantic</u>	<u>Pacific</u>
<i>pectinatus</i> species group		
	<i>pectinatus</i>	<i>methus</i>
<i>undecimalis</i> species group		
	<i>undecimalis</i>	<i>viridis</i>
<i>ensiferus</i> species group		
	<i>ensiferus</i>	<i>robalito</i>

The remaining six species are *nigrescens* (Pacific), apparently closest to *viridis* (Pacific) but possibly constituting another transisthmian pair with *poeyi* (Atlantic), a species of uncertain relationship; *mexicanus* and *parallelus*, a pair of closely related, sympatric Atlantic species; and two Pacific members of the *ensiferus* species group (*unionensis*, *armatus*).

Following publication of Rivas' (1986) posthumous systematic review of the genus, this key was extensively revised following Rivas' methodology and utilizing his counts and measurements. It was further revised twice in 1997. I regret the impossibility of discussing the present draft with Luis Rivas who knew so much about these animals.

### Key to the Species of *Centropomus*

- 1a. Anal soft rays 7, rarely 8. [Dorsal soft rays modally 10, rarely 9 or 11 Pectoral rays modally 14, often 13 or 15. Distal part of second anal spine straight or slightly curved forward. Distal third of spinous dorsal and pelvic fins usually black. Opercular flap extends to well short of vertical from dorsal origin. .... *pectinatus* species group, 2
- 1b. Anal soft rays 6, rarely 5 or 7. Pectoral rays modally 15 or 16, frequently 14 or 17 in some species. Distal part of second anal spine slightly incurved. Spinous dorsal and pelvic fins sometimes dusky but not abruptly black distally. Opercular flap variable. .... 3
- 2a. Scales in row above lateral line (61)63-71(72). Gill rakers (excluding rudiments) on first arch (19)21-22(23). *Atlantic: Fort Pierce and Panama City, Florida south to southwestern Gulf of Mexico; the Greater Antilles and Panama to Brazil*.....  
 ..... tarpon snook, *C. pectinatus* Poey, 1860

- 2b. Scales in row above lateral line (53)55-62(65). Gill rakers (excluding rudiments) (18)19-21(22). *Pacific: Magdalena Bay, Baja California Sur, and Guaymas, Sonora, Mexico south to Buenaventura, Colombia.* ..... blackfin snook, *C. medius* Gunther, 1864
- 3a. Scales in row above lateral line 67 to 92. Pectoral fin failing by wide margin to reach tip of pelvic fin; length 16.9 to 23.2% of SL, infrequently more than 22%. Opercular flap extends almost to or below vertical from dorsal origin. Scales between origin of second dorsal fin and lateral line (9)10-14(16). Scales around caudal peduncle (22)24-30(31). Preopercular spines on posterior edge smaller and more numerous, probably increasing with age, 27-73 in adults. Tip of appressed second anal spine does not reach caudal base and does not reach or scarcely exceeds (sometimes in *parallelus* and *mexicanus*) tip of third spine. .... *undecimalis* species group. . 4
- 3b. Scales in row above lateral line 46-59. Pectoral fin reaching to or nearly to tip of pelvic fin; length 22.6 to 29.3% of SL, usually 23% or more. Opercular flap extends beyond vertical from dorsal origin. Scales between origin of second dorsal fin and lateral line 6-10 (11). Scales around caudal peduncle (18)19-24(25). Preopercular spines on posterior edge larger and fewer, 15-22 in adults. [Lacrimal with strong serrations.] Tip of appressed second anal spine reaches to or beyond caudal base except in *unionensis* and extends somewhat past (*unionensis*) or far beyond tip of third spine ..... *ensiferus* species group 9
- 4a. Second anal spine shorter and weaker, its tip does not reach, is equal to, or extends only a short distance behind tip of third anal spine and far short of caudal base; length 11.4 to 23.9% of SL, usually less than 21%. Tip of pelvic fin does not reach vent except in young. Distance from anal-fin origin to vent 8.2 to 12.6% of SL. Scales from second dorsal-fin origin to lateral line 9-12(14). Maximum total length of all species exceeds 900 mm. . . . 5

- 4b. Second anal spine long and strong, its tip extends well behind tip of third anal spine and to or nearly to caudal base; length 17.5 to 30.2% of SL, usually more than 21%. Tip of pelvic fin reaches or exceeds vent. Distance from anal-fin origin to vent 12.8 to 15.7% of SL. Scales from second dorsal-fin origin to lateral line (10)11-14(16). Maximum known total length less than 650 mm. .... 8
- 5a. Gill rakers (excluding rudiments) on first arch 11 to 14, except often 15 and rarely 16 in the Pacific *viridis*. Pectoral-fin rays (14)15(16). Length of third dorsal spine 13.0-20.1 (means 14.3 to 17.0) % of SL. .... 6
- 5b. Gill rakers (excluding rudiments) 15 to 18, usually 16 or 17. Pectoral-fin rays (15)16(17). Length of third dorsal spine 18.1-19.8 (mean 18.7) % of SL. [Soft dorsal rays 9, very rarely 8 or 10. Fleshy interorbital width 6.0-7.2% of SL] *Atlantic: Gulf Coast of Mexico from Tampico, Tamaulipas south to Frontera, Tabasco* .....  
 ..... Mexican snook, *C. poeyi* Chavez, 1961
- 6a. First dorsal fin rounded, third spine subequal to fourth, its length 13.0-15.5 (mean 14.3) % of SL. Fleshy interorbital width 5.8-7.2 (mean 6.7) % of SL. [Dorsal soft rays 10, rarely 9 or 11] *Pacific: Gulf of California, Mazatlán, Sonora south to Buenaventura, Colombia. Enters fresh waters.* ..... black snook, *C. nigrescens* Günther, 1864
- 6b. First dorsal fin triangular, third spine much longer than fourth, its length 14.5-20.1 (means 16.8-17.0) % of SL. Fleshy interorbital width 4.4-6.2 (means 5.2 and 5.4) % of SL..... 7
- 7a. Dorsal soft rays 10, rarely 9 or 11. Gill rakers (excluding rudiments) on first arch 11-13(14). *Atlantic: North Carolina and Gulf of Mexico, Antilles and Caribbean south to Rio de Janeiro, Brazil. Enters freshwaters; in the Usumacinta basin as far as El Quiche, Guatemala.* ..... [common] snook, *C. undecimalis* (Bloch, 1792)

- 7b. Dorsal soft rays 9, rarely 8 or 10. Gill rakers (excluding rudiments) on first arch (13)14-15(16). *Pacific: Asuncion Island, Baja California and Gulf of California (Guaymas) south to Paita, Peru and the Galapagos Islands* ..... white snook, *C. viridis* Lockington, 1877
- 8a. Lateral scales (79)80-89(92). Scale rows around caudal peduncle (26)27-30(31). *Atlantic: South Florida (Sebastian to Sarasota), Mexico Coast (Tamaulipas to Tabasco) southward to Florianopolis, Brazil. Enters fresh waters, including Lake Okeechobee and Lake Nicaragua.* ..... fat snook (or smallscale snook), *C. parallelus* Poey, 1860
- 8b. Lateral scales (68)70-77(78). Scale rows around caudal peduncle 24-27(28). *Atlantic: Gulf Coast of Mexico (Tamaulipas to Tabasco) and Greater Antilles south to Porto Alegre, Brazil. Apparently absent from Caribbean except for Antilles.*.....  
 ..... constantino, *C. mexicanus* Bocourt, 1868
- 9a. Dorsal soft rays modally 9, often 10. Second anal spine shorter, does not reach base of caudal fin; its tip slightly (by less than one-half diameter of eye) behind tip of third spine; length 17.6-23.4% of SL. Membrane between second and third anal spines pale or dusky. *Pacific: La Paz, Baja California Sur and Sinaloa, Mexico south to Tumbes, Peru.* .....  
 ..... humpback snook, *C. unionensis* Bocourt, 1868
- 9b. Dorsal soft rays 10, very rarely 9 or 11. Second anal spine long and stout, extends to or beyond caudal base; its tip far (by at least one-half diameter of eye) beyond tip of third spine; length 19.8-32.6% of SL. Membrane between second and third anal spines usually blackened..... 10
- 10a. Caudal peduncle scales (20)21-24(25). Gill rakers (including rudiments): lower limb (13)14-16(17); total (20)21-24(25). Anal-fin origin to vent 8.8-12.2% of SL. Anal-fin

- base length 11.9-13.6% of SL. Anal-spine 2 length 25.7-32.6% of SL. *Pacific: Mazatlán, Sinaloa, Mexico south to La Tola, Ecuador.* ..... longspine snook, *C. armatus* Gill, 1863
- 10b. Caudal peduncle scales (18)19-21(23). Gill rakers (including rudiments): lower limb (16)17-20; total (24)25-30(31). Anal-fin origin to vent 11.7-16.3% of SL. Anal-fin base length 9.9-12.3% of SL. Anal-spine 2 length 19.8-29.9% of SL ..... 11
- 11a. Pectoral-fin rays usually 15, occasionally 14 or 16. Dorsal-spine 3 length 17.7-22.2% of SL, when erect longer than fourth. Gill rakers (excluding rudiments) 19-26, usually 21 or more. *Pacific: Rio Presidio, Sinaloa, Mexico to Panama.* ..... yellowfin snook, *C. robalito* Jordan and Gilbert, 1881
- 11b. Pectoral-fin rays usually 16, often 15, very rarely 14 or 17. Dorsal-spine 3 length 13.8-18.1% of SL, when erect subequal with fourth. Gill rakers (excluding rudiments) 14-22, usually 20 or fewer. *Atlantic: Veracruz, Mexico and Atlantic Coast of Florida from St. Lucie River south to Rio de Janeiro, Brazil.* ..... swordspine snook, *C. ensiferus* Poey, 1860

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