

A NEW NORTHERN RECORD OF THE SMOOTH STARGAZER¹

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On August 8, 1960, a smooth stargazer, *Kathetostoma averruncus* Jordan and Bollman, was trawled off Piedras Blancas, San Luis Obispo County in 600 feet of water, 200 miles north of the species' previous recorded range. Since 1959, when the first California specimen (Figure 1) was trawled in Santa Monica Bay (Radovich, 1961), an additional 11 have been taken (Table 1). Quite possibly, oceanic currents carried them north from Baja California waters as pelagic young and their continued development was facilitated by the warm-water conditions prevailing off California from 1957 through 1959. Otolith age determinations by John E. Fitch (pers. comm.) show that none was old enough to have arrived before 1957.



FIGURE 1. Smooth stargazer, *Kathetostoma averruncus* Jordan and Bollman. Photograph by Jack W. Schott.

Six specimens were females but the sexes of the rest could not be determined. The stomachs of six contained partially digested fish. The Piedras Blancas stargazer contained a lingcod, *Ophiodon elongatus*, 120 mm total length; one trawled off Rincon Point contained a short-spine combfish *Zaniolepis frenata*, and a partially digested northern anchovy, *Engraulis mordax* (Outdoor California, 1961); and another from off Rincon Point contained a partially digested flatfish, family Bothidae.

We encountered difficulty determining whether the California stargazers were *K. averruncus* (type locality: Panama) or *K. ornatus* Wade (type locality: near San Benito Islands, Baja California). On the basis of geographical distribution, it would seem logical to identify those collected to the north as *K. ornatus*. However, since stargazers have

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pelagic young, distribution alone cannot be used as a criterion for identification. We compared the California fish with descriptions of *K. averruncus* (Jordan and Bollman, 1889; Garman, 1899) and *K. ornatus* (Wade, 1946) and although meristic counts in the early descriptions were of some value, the measurements were too general to be useful. Therefore, we compared ours with nine *K. averruncus* from near the type locality, Panama. All counts and measurements follow Hubbs and Lagler (1958) and Berry and Anderson (1961). The California fish

TABLE 1

Collection Data for 11 Smooth Stargazers Taken in California Since 1959

Date	Locality	Depth (feet)	Sex	Standard length (mm)	Collector
15 May 1960	5-7 mi. north of and parallel to Santa Cruz Id.	720-1030	Not determined.	169.5	Unknown
24 June 1960	5 mi. off Ballona Ck., Santa Monica Bay	300	Not determined.	159.5	John Baxter
8 Aug. 1960	Off Piedras Blancas.....	600	♀ Mature.....	193.5	Neil Burton
13 Dec. 1960	Off Ventura.....	Unknown	♀ Immature....	133.6	Vic Castagnola
12 Jan. 1961	5¼ mi. west of Hyperion, Santa Monica Bay	222-312	Not determined.	143.9	Gordon Chapman
13 Apr. 1961	Off Rincon Point, Santa Barbara.....	294	♀ Mature.....	195.5	Harry Barrington
12 May 1961	Off Rincon Point, Santa Barbara.....	300	Not determined.	156.0	Floyd Watson
9 Nov. 1961	6¼ mi. west of Hyperion, Santa Monica Bay	306-324	♀ Mature.....	208.5	William Donnelly
22 Mar. 1962	Inside of Santa Cruz Id.....	750	♀ Immature....	186.0	Harry Barrington
22 Mar. 1962	Inside of Santa Cruz Id.....	750	♀ Mature.....	190.5	Harry Barrington
Unknown.....	Probably off Santa Barbara.....	Unknown	Not determined.	133.9	Unknown

TABLE 2

Comparison of Selected Characters of *Kathetostoma averruncus* and *K. ornatus*

	California specimens (11)	Panama specimens* (9)	Redescription of <i>K. averruncus</i> (Garman, 1899)	Description of <i>K. ornatus</i> (Wade, 1946)
Size range (s. l., in mm).....	133.6-208.5	61.0-75.6	-----	72.0-90.5
Counts (number of fish in parentheses)				
Dorsal rays.....	13(1), 14(1), 15(5), 16(3), 18(1)	14(7), 15(2)	14-15 (rarely 13)	15(1), 16(1)
Anal rays.....	13(3), 14(6), 15(2)	13(6), 14(2)	13-14	13(1), 14(1)
Pectoral rays.....	18(2), 19(2), 20(2), 21(4), 22(1)	18(1), 19(3), 20(4), 21(1)	19	20(1), 21(1)
Measurements (mean values in parentheses)				
In head:				
Orbit.....	4.71-5.88 (5.27)	4.13-4.57 (4.39)	-----	5.0-5.1 (5.05)
Interorbital.....	3.11-3.63 (3.36)	3.35-3.67 (3.51)	-----	3.65-3.90 (3.78)
Snout.....	4.35-5.10 (4.70)	4.35-5.18 (4.81)	-----	5.83-6.02 (5.93)
In interorbital:				
Premaxillary groove width.....	1.65-2.36 (1.99)	1.61-2.36 (1.82)	-----	1.73 (Holotype only)

* University of California, Los Angeles Collection, W53-311, taken between Islas Perlas and Islas Otoque, Panama (lat. 8° 32' 10" N., long. 79° 21' 11" W.) at 210 feet. 19 Mar 1953. W. Baldwin, collector.

agreed quite closely with the smaller Panama individuals except for the orbit-into-head proportion which could be due to allometric growth. Both lots could be separated from the *K. ornatus* description by minor differences in snout length and interorbital distance (Table 2). A re-examination of *K. ornatus* may show it is a synonym of *K. averruncus*.

All specimens in Table 1 are or will be deposited at the University of California, Los Angeles, except for the two lots dated May 15, 1960, and "unknown" which are housed at the University of California, Santa Barbara. We wish to thank the personnel of these two institutions for their co-operation and acknowledge the helpful advice and criticisms of John Baxter, John Fitch, and Leo Pinkas of the California State Fisheries Laboratory.

REFERENCES

- Berry, Frederick H., and William W. Anderson
1961. The stargazer fishes from the western North Atlantic (family Uranoscopidae). Proc. U.S. Natl. Mus., vol. 112, no. 3448, pp. 563-586.
- Garman, Samuel
1899. Reports on an exploration off the west coasts of Mexico, Central and South America, and off the Galapagos Islands, in charge of Alexander Agassiz, by the U.S. Fish. Commission Steamer "Albatross" during 1891. Lieutenant Z. L. Tanner, U.S.N. Commanding. xxvi. The Fishes. Mem. Mus. Comp. Zool. Harvard XXIV, 431 pp.
- Hubbs, Carl L., and Karl F. Lagler
1958. Fishes of the Great Lakes Region. Bull. Cranbrook Inst. Sci., no. 26, 213 pp.
- Jordan, David S., and Charles H. Bollman
1889. Scientific results of explorations by the U.S. Fish. Commission Steamer "Albatross." Pt. IV. Descriptions of new species of fishes collected at the Galapagos Islands and along the coast of the United States of Colombia, 1887-88. Proc. U.S. Natl. Mus., vol. 12, no. 770, pp. 149-183.
- Outdoor California
1961. The big aquatic world has its share of wandering stargazers. Outdoor Calif., vol. 22, nos. 6-7, p. 3.
- Radovich, John
1961. Relationships of some marine organisms of the northeast Pacific to water temperatures, particularly during 1957 through 1959. Fish Bull., Calif. Dept. Fish and Game, no. 112, 61 pp.
- Wade, Charles B.
1946. New fishes in the collections of the Allan Hancock Foundation. Allan Hancock Pac. Exped., vol. 9, no. 8, pp. 215-237.