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A NEW SPECIES OF FISH OF THE GENUS *Stellifer* (PERCIFORMES: SCIAENIDAE) FROM THE SOUTH CARIBBEAN SEA

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RESUMEN

El género **Stellifer** se caracteriza por la ausencia de barbillones mentonianos; distancia interorbital contenida 3.5 veces o menos en la longitud de la cabeza; vejiga natatoria con dos cámaras, la anterior con un par de divertículos posterolaterales; cabeza cavernosa; branquispinas largas y flexibles; otolitos sagitta y lapillus bién desarrollados. Se describe una nueva especie de **Stellifer,** la cual se caracteriza por tener los divertículos de la vejiga natatoria muy pequeños, cortos y en forma de bulbo, el primer arco branquial oscuro, casi negro, con 42 a 49 branquispinas, la mayor de ellas supera en longitud al filamento branquial del ángulo del mismo arco, y por presentar cuatro poros en el mentón. Se separa de las demás especies del género por el número de branquispinas. La especie más relacionada es **S. rastrifer** de la cual puede distinguirse por el número de espinas en el preopérculo y el número de poros mentonianos.

ABSTRACT

The genus **Stellifer** is charaterized by its lack of mental barbels, interorbital width 3.5 or less in head, swim bladder with two chambers, the anterior with a pair of diverticula located posterolaterally, cavernous head, gill rakers long and slender; otoliths sagittae and lapillus enlarged. A new species of **Stellifer** is described. This species is characterized by the presence of a pair of small bulb-like diverticula in the anterior chamber of the swim bladder, dark first gill arch, with 42-49 gill rakers, the longest of them larger in length than the gill filament located at angle of arch, and four mental pores. Differs from other species of the genus by the number of gill rakers. The more similar species is **S. rastrifer** of which differs in that it has different number of preopercular spines and mental pores.

INTRODUCTION

A new species of marine sciaenid fish was captured in 1982, during exploratory expeditions in the vicinities of Isla de Salamanca, Colombia, and in the Venezuelan part of the Golfo de Venezuela, by the Instituto de Investigaciones Marinas de Punta de Betín (INVEMAR), Colombia, and the Universidad Nacional Experimental Francisco de Miranda (UNEFM), Venezuela. The swim bladder of this species is divided into two chambers by an anterior constriction; the anterior chamber is yoke-shaped, with a pair of postero-lateral diverticula and the posterior one is carrot-shaped. Both sagittae and lapillus are enlarged. There are no mental barbels. Interorbital width 3.5 or less in head length. These characters are diagnostic of the genus *Stellifer*, therefore the new species is classified in that genus.

MATERIAL AND METHODS

The specimens of Isla de Salamanca were collected from beach seine samples, and those of Venezuela, were a part of the fish discarded ("trash") from the commercial fishing boats in the Golfo de Venezuela.

The standard methods of Hubbs and Lagler (1958) were used for all counts and measurements, except for eye diameter which was measured horizontally, body depth wich was measured at the origin of the pelvic fins and lengths of pectoral fins which were measured from the origin of the first ray to the tip of the longest ray. All measurements were made on the left side. The raker usually found at the articulation of the ceratobranchial and epibranchial was recorded in the count of the lower portion of arch. Inner gill rakers and tubercles were also counted. Vertebral counts were made in specimens cleared and stained according to Taylor's method (1967). The first caudal vertebra was identified by the absence of pleural ribs on the haemal processes, presence of neural and haemal spine trident-shaped (2 lateral and 1 posterior spine) just the elongated proximal pterygiophore of the anal fin.

The morphological terminology used follows Chu, Lo and Wu (1963), Trewavas (1964), Chao and Miller (1975) and Chao (1978).

Holotype: MBUCV (Museo de Biología, Universidad Central de Venezuela, Caracas) V-13815,69 mm SL, Punta Campana, Golfo de Venezuela; 8 to 10 fathoms; shrimp trawl; January, 1982.

Paratypes: INVEMAR (Instituto de Investigaciones Marinas de Punta de

Betín, Santa Marta, Colombia) P-722 (3, 63-91 mm SL); P-729 (2, 87-90 mm SL); P-719 (6, 71-95 mm SL); P-765 (3, 81-92 mm SL). UNC-MCN (Universidad Nacional de Colombia, Museo de Ciencias Naturales, Bogotá, Colombia) No. 843 (4,74-82 mm SL). CIP (Centro de Investigaciones Pesqueras, Cartagena, Colombia) No. 608 (3,76-87 mm SL). MM (Museo del Mar, Bogotá, Colombia) 5069 PEC 1448 (3,82-97 mm SL). UMML (Rosenstiel School of Marine and Atmospheric Science, Miami, U.S.A.) No. (6,70-94 mm SL). ANSP (Academy of Natural Sciences, Philadelphia, Pa, U.S.A.) No. 153376 (6,78-93 mm SL). UNEFM (Universidad Experimental Francisco de Miranda, Venezuela) No. 13815 (35, 51.2-74.2 mm SL), Punta Capana, Golfo de Venezuela, 8 to 10 fathoms, shrimp trawl, January 1982.

All paratypes in the Colombia and U.S.A. museums were collected with beach seine on the Isla de Salamanca, Colombia, May, September and October, 1982.

Stellifer chaoi sp. nov.
Fig. 1

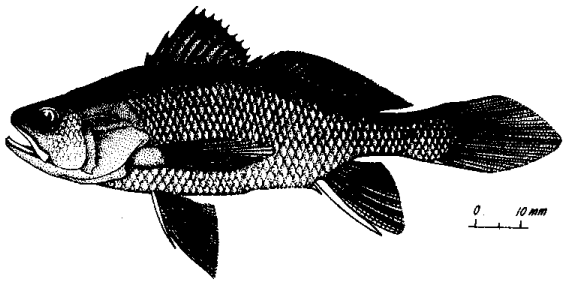

Figure 1. *Stellifer chaoi*, new species, MM 5069 pec 1448, Paratype, from Isla de Salamanca (Colombia)

Diagnosis:
Stellifer chaoi has a pair of small bulb-like diverticula at the anterior swim bladder chamber; dark first gill arch with (16-19) + (25-30) = 42-49 gill rakers; four mental pores. The most closely related species is *S. rastrifer* which differs in the number of preopercular spines and chin pores.

Description:
D. XI (occasionally XII) + II (occasionally I), 19-23 generally 20-21; A. II, 8, rarely 9; Pc. 16-20, generally 18-19. Additional data are presented in table 1.
Body elongated fusiform and compressed, maximun depth between origin of dorsal fin and origin of pelvic fin.

Table 1. Selected counts of **Stellifer chaoi** sp. nov.

Dorsal spines		Dorsal soft rays					Total			
XI + I	XI + II	19	20	21	22	23	32	33	34	35
7	67	1	39	27	5	2	3	39	26	6

Pectoral rays				Lateral line scales			
17	18	19	20	46	47	48	49
2	22	44	9	3	10	28	18

Inner gill rakers

Upper				Lower					Total				
5	6	7	8	18	19	20	21	22	25	26	27	28	29
1	3	16	15	2	1	22	9	1	2	3	10	17	3

Gill rakers excluding tubercles

Upper				Lower						Total							
16	17	18	19	25	26	27	28	29	30	42	43	44	45	46	47	48	49
8	23	32	10	3	16	25	22	6	1	4	12	12	21	17	5	1	1

Head moderate, and with conspicuous cavernous canals, snout not projecting in front of upper jaw, with three rostral (upper) pores and five marginal (lower) pores. Rostral fold (flap) free and divided into four lobes (Fig. 2A) by two weak inner notches and two deep outer notches for the inner and outer paired pores respectively. Four mental pores (Fig. 2B). No mental barbels in lower jaw.

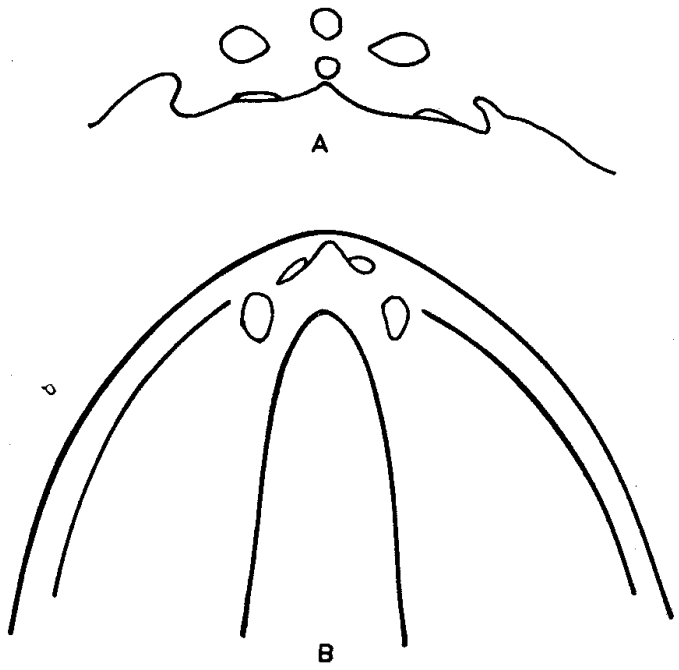

Figure 2. Diagrammatic representation of arrangement of the rostral and marginal pores (A) and mental pores (B) of the holotype of *Stellifer chaoi* new species.

Mouth moderately enlarged, oblique. Lower jaw projecting in front of upper jaw, maxillary and dentary teeth small and in villiform bands. Eyes small, located on the anterior half of head; inter-orbital space convex. Passage of latero-sensory canal system under dermal roofing of skull, suborbitals, preopercle and lower jaw clearly visible externally. Tip of anterior swim bladder terminating subcutaneously, visible on superficial inspection under the upper end of operculum. Preopercular margin with 3-4 strong spines at the angle and 3-5 conspicuous spines above these.

Gill rakers long and slender (16-19) + (25-30) = 42-49. Inner gill rakers (5-8) + (18-22) = 25-29 (n = 36).

Body covered mostly with ctenoid scales, but cycloids occur on top of head, cheek and tip of snout. Dorsal and anal fins have a sheath of cycloid scales. Caudal and anal fins are totally covered by cycloid scales; cycloids present also at proximal ends of pelvic and pectoral fins. Lateral line with perforated ctenoid scales and often with small intercalated cycloid scales.

Table 2. Selected diagnostic measurements (in percent of standard length) of **Stellifer chaoi** sp. nov.

	Holotype	Specimens	N	$\bar{X}$
Standard length (mm)	69.0	51.2 - 97.0	77	
Eye diameter	5.7	5.1 - 6.7	77	5.9
Maxillary length	15.9	13.0 - 16.6	77	14.8
Inter-orbital width	10.0	8.4 - 10.7	77	9.5
Head length	32.9	30.0 - 34.5	77	32.4
Body depth	29.9	27.3 - 32.8	77	30.0
Pectoral length	28.1	24.6 - 32.2	76	29.2
Pelvic length	22.3	21.9 - 28.4	74	24.7
Least caudal peduncle depth	9.0	7.7 - 9.9	77	8.8
Second anal spine	20.0	17.1 - 22.8	74	19.7

Lateral line scales regulary arranged (46-49) continuous to end of caudal fin. Vertebral counts 10 + 15 = 25 (n = 15 specimens 59-71 mm SL), the first caudal vertebra has a short tridentshaped haemal spine (2 lateral and 1 posterior spine).

Deep notch present between first and second parts of dorsal fin. First dorsal fin without an elongated filament. Pectoral fin originating directly below dorsal origin, its distal end passing the vertical through the vent. Pelvic fin originating a little behind pectoral fin, with elongated filamentous first soft ray, that reaches the anus. Anal fin with a minute first spine, second spine long and punged, soft rays slightly elongated. Caudal fin long and distinctly rhomboidal with the apex at end of lateral line.

Swim bladder (Fig. 3) separated into two chambers by a constriction; anterior chamber yoke-shaped and with postero-lateral diverticula, located anterior to the septum transversum, posterior chamber simple, carrot-shaped. Drumming muscle present only in males.

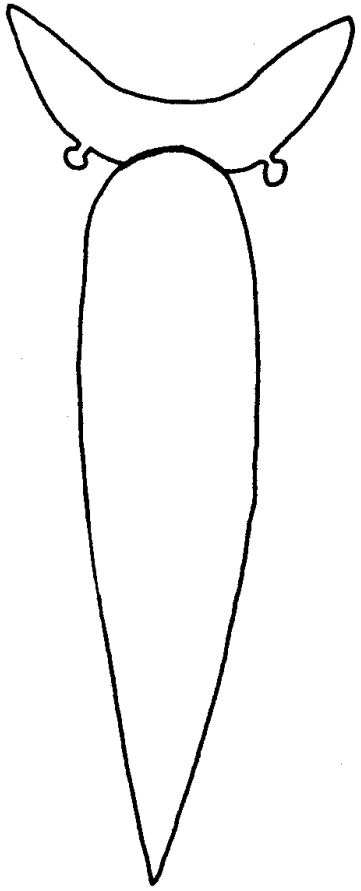

Figure 3. Diagrammatic representation of the shape of swim bladder of *Stellifer chaoi* new species.

Both sagittae and lapillus are enlarged (Fig. 4). In fresh specimens, the ostium of the sulcus of the sagittae is short and reaches to the anterior margin, the cauda is bent obliquely towards the ventral margin, the whole sagittae appears to be truncated at the middle of the ostium. The lapillus is enlarged with a deep groove present at the anteroventral end of its inner surface, that is open to the ventral margin.

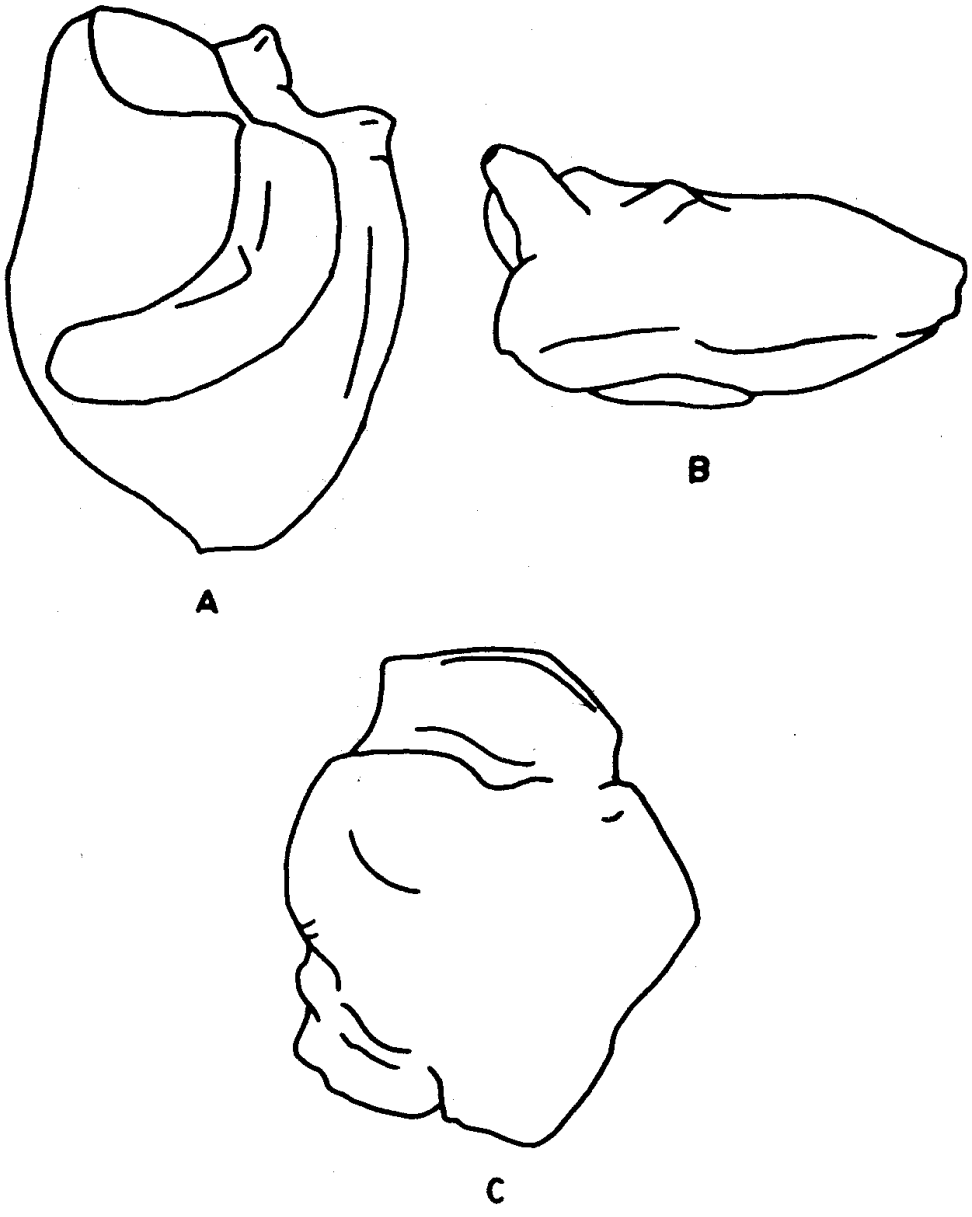

Figure 4. Diagrammatic representation of the inner (A) and lateral (B) surfaces of sagittae and lapillus (C) of *Stellifer chaoi* new species.

Coloration:

In fresh specimens, body silvery with a yellowish brilliance. Ventral region pale. Small cromatophores scattered over dorsal region, head, and nape. Large cromatophores on the suborbital and preopercular regions and in less number on the opercular region; large cromatophores also located on lips and arranged in a dark band just behind the teeth of lower jaw. Other cromatophores scattered on roof of mouth and tip of tongue. Caudal fin dusty. Pectoral fin yellow with dark spots. Inferior part of pelvic fin pale and distal region pale and distal region dark. Anal fin also dusty. Dorsal fin with small scattered spots, distal margin dark. Anterior inner surface of operculum and gill arches with numerous and small cromatophores. Peritoneum translucent with dark spots.

Distribution:

Known from the coast of Isla de Salamanca, Colombia, and the Venezuelan part of the Golfo de Venezuela.

Habitat:

The species was found over sandy bottom in shallow waters of moderate turbidity, at the coastline near the mouth of a coastal lagoon with extreme variations in salinity (Ciénaga Grande de Santa Marta, Colombia). In Venezuelan portion of the Golfo de Venezuela, the species was caught in three samples over sand-mud bottoms, 4-6 miles in front Punta Capana, at depths between 8 to 10 fathoms.

Etimology:

This species is named after Dr. Labbish N. Chao, Base Oceanografica Atlántica of Fundaçao Universidade do Rio Grande, Brasil, for his valuable contributions to the study of sciaenids.

Miscelanea:

Other 40 samples were made around Golfo de Venezuela, but in none of them *Stellifer chaoi* was present. Table 3 lists the fish fauna associated with *Stellifer chaoi,* at the locality of Punta Capana. A total of 48 fish species were caught with the new species. In night catches, this species is dominant (23.4%) in relation to the total biomass captured. It is not so during daily hours.

Table 3. Fish fauna associated with **Stellifer chaoi** sp. nov. (Punta Campana) in the Golfo de Venezuela

SPECIES	DIURNAL		NOCTURNAL	
	B (g)	N(ind)	B(g)	N(ind)
Ophichthus gomesi (Castelnau)	925	7	325	3
Chirocentrodon bleekerianus (Poey)	6.950	2.635	650	214
Opisthonema oglinum (Lesueur)	300	27	625	62
Pellona harroweri (Fowler)	9.050	1.006	400	50
Odontognathus compressus Meek & Hildebrand	725	89	275	30
Anchoa spinifer (Valenciennes)	250	30	—	—
Cetengraulis edentulus (Cuvier)	900	72	—	—
Lycengraulis grossidens (Cuvier)	2.200	254	150	9
Synodus foetens (Linnaeus)	430	4	125	1
Bagre bagre (Linnaeus)	10	1	25	2
Porichthys porosissimus (Valenciennes)	46	3	—	—
Thalassophryne maculosa (Gunther)	—	—	300	3
Lepophidium profundorum (Gill)	175	7	50	2
Prionotus punctatus (Bloch)	220	9	50	6
Diplectrum radiale (Quoy & Cairmard)	91	3	—	—
Chloroscombrus chrysurus (Linnaeus)	2.375	28	175	2
Hemicaranx amblyrhynchus (Cuvier)	—	—	50	3
Oligoplites palometa (Cuvier)	200	1	—	—
Oligoplites saliens (Bloch)	—	—	50	2
Selene setapinnis (Mitchill)	27	5	—	—
Selene vomer (Linnaeus)	5	1	25	3
Lutjanus synagris (Linnaeus)	50	1	—	—
Diapterus rhombeus (Cuvier)	82	2	—	—
Eucinostomus argenteus Baird & Girard	38	2	50	2
Haemulon steindachneri (Jordan & Gilbert)	25	1	—	—
Ctenosciaena gracilicirrhus (Metzelaar)	30	3	—	—
Cynoscion jamaicensis (Vaillant & Bocourt)	6.625	693	2.200	227
Cynoscion leiarchus (Cuvier)	850	24	325	8
Isopisthus parvipinnis (Cuvier)	1.600	106	700	47
Larimus breviceps Cuvier	55	2	425	33
Macrodon ancylodon (Bloch & Scheneider)	355	4	25	4
Micropogonias furnieri (Desmarest)	2.200	42	975	17
Nebris microps Cuvier	82	21	125	25
Stellifer chaoi sp nov.	165	29	10.000	1.250
Stellifer colonensis Meek & Hildebrand	1.275	155	12.000	1.200
Stellifer microps (Steindachner)	1.325	120	—	—
Stellifer rastrifer (Jordan & Eigenmann)	625	62	9.000	846
Stellifer stellifer (Bloch)	160	11	25	3
Stellifer venezuelae (Schultz)	25	2	—	—
Chaetodipterus faber (Broussonet)	11	2	10	2
Mugil curema Valenciennes	130	1	—	—
Trichiurus lepturus Linnaeus	13.475	178	3.050	53
Peprilus paru (Linnaeus)	125	19	17	3

Table 3. Continuation.

Citharichthys sp.	125	25	—	—
Engyophrys sentus Ginsburg	10	1	—	—
Syacium gunteri Ginsburg	300	65	150	27
Achirus lineatus (Linnaeus)	—	—	7	1
Symphurus plagusia (Bloch & Schneider)	275	14	250	13
Spheroides testudineus (Linnaeus)	200	1	75	1
Invertebrates	17.475	—	5.300	—
Total fish	55.097	5.768	42.684	4.154
Total fish + invert.	72.572	—	47.984	—

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