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## First Record of *Boccardiella ligerica* (Ferrogniere) (Polychaeta: Spionidae) from the East Coast of North America

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## Short Papers and Notes:

### FIRST RECORD OF *BOCCARDIELLA LIGERICA* (FERRONNIERE) (POLYCHAETA: SPIONIDAE) FROM THE EAST COAST OF NORTH AMERICA<sup>1</sup>

The polydorida complex of the family Spionidae comprises many closely related species characterized by a modified fifth setiger with stout specialized spines. The genus *Boccardiella* was established by Blake and Kudenov (1978) to include those polydorida species with branchiae anterior to setiger 5 and only one type of spine in setiger 5. *Boccardiella ligerica* was described by Ferrogniere (1898; as *Boccardia ligerica*) from the Estuary of Loire, France. Blake and Woodwick (1971) provided an excellent redescription of this species (as *Boccardia ligerica*) when they placed it in synonymy with *Polydora redeki* Horst, 1920 from Holland. The species is presently known from shallow waters off California, western Europe, South Africa, Uruguay, Argentina, and the West Indies (Blake, 1983). The purpose of this paper is to report the first record of *Boccardiella ligerica* from the east coast of North America and compare its distribution with that of a congener, *B. hamata* (Webster, 1879). Morphological variation in the posterior region of *B. ligerica* is also briefly discussed.

A total of 193 specimens of *Boccardiella ligerica* was collected at three sites in the northeastern Gulf of Mexico in the vicinity of the Crystal River, Florida (Figure 1). The Crystal River is fed by 30 springs at its headwaters and its discharge is related more to tidal height than rainfall (Rosenau *et al.*, 1977). Sites

<sup>1</sup>Contribution Number 296 from Mote Marine Laboratory.

(stations) were sampled quarterly from February to November 1984 by means of diver operated box cores (12.5 cm square x 15.0 cm deep). Numbers of specimens collected at each station and corresponding physical data are given in Table 1. All but one specimen of *B. ligerica* were collected at brackish-water stations C4 and C7; most were from station C7, where sediments consisted mainly of coarse sand and oyster shell hash. A single specimen was collected at station C10, a relatively high salinity environment located offshore. These records in the Gulf of Mexico extend the distribution of *B. ligerica* in the Atlantic Ocean to the east coast of North America. Blake (1983) suggested transport by ships as a possible mechanism for the wide dispersal of this species.

*Boccardiella ligerica* occurs principally in brackish to near freshwater environments (Blake, 1983), though Kudenov (1983) confirmed the presence of this species in the coastal marine fauna of Southern California based on a single specimen. The salinity preference of *B. ligerica* near Crystal River thus agrees with previously published information. The species has been reported from a wide variety of bottom types: mud flats, clay-gravel, among valves of molluscs, among tubes of the serpulid polychaete *Mercierella enigmatica*, and bore-holes in pieces of submerged timber and charcoal (Blake, 1983 and authors cited therein).

Though *Boccardiella ligerica* is not previously known from the east coast of North America, a morphologically similar congener *B. hamata*, which penetrates shell (Blake, 1966; as *Boccardia hamata*), has been reported from the eastern seaboard of the United States and the western Gulf of Mexico (see Blake and Woodwick, 1971 for the distinction between the two species). An extensive

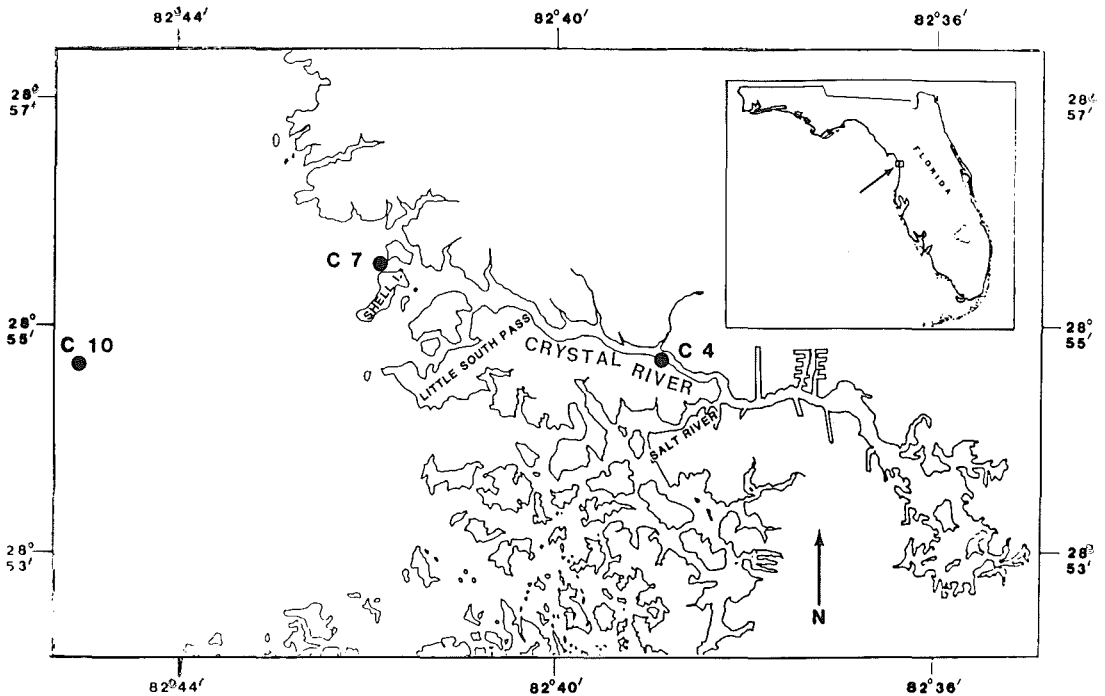


Figure 1. Location of study area, with study sties indicated.

18-month investigation in the Gulf of Mexico just north of the study area (Stone & Webster Engineering Corporation, 1985) yielded numerous specimens of *B. hamata* at two high-salinity ( $x = 23\text{‰}$ ) stations bordering oyster reefs, but no *B. ligerica* were reported. *Boccardiella hamata* also occurred at offshore station C10 (Figure 1), which contained much oyster shell, but did not occur at station C4, a low-salinity, fine-sand station where *B. ligerica* occurred. The two species occurred together in May 1984 at station C7 (Table 1), an intermediate-salinity station consisting mainly of coarse sand and oyster shell hash. Though the absence of *B. hamata* at station C4 could be due to the unavailability of suitable substratum (shell), distributional differences between the two *Boccardiella* species appear to be, in part, a function of salinity. It is interesting to note that in the Pacific Ocean *B. hamata* has been reported off-

shore of San Francisco Bay, California but never in its confines, where *B. ligerica* occurs (Light, 1978).

The posterior region of most *Boccardiella ligerica* specimens from the Gulf of Mexico (Figure 2) differs notably from that illustrated in Blake and Woodwick (1971, Figure 1i) by having less separation between notopodia. In some specimens, only the last two pairs of notopodia were separated, the notopodial spines in all but these last two segments completely overlapping. This morphological variation among specimens is apparently a function of their state of contraction upon (due to?) fixation.

#### ACKNOWLEDGMENTS

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**Table 1.** *Boccardiella ligerica* (Ferrogniere, 1898) collected from the Gulf of Mexico (refer to Figure 1 for station locations).

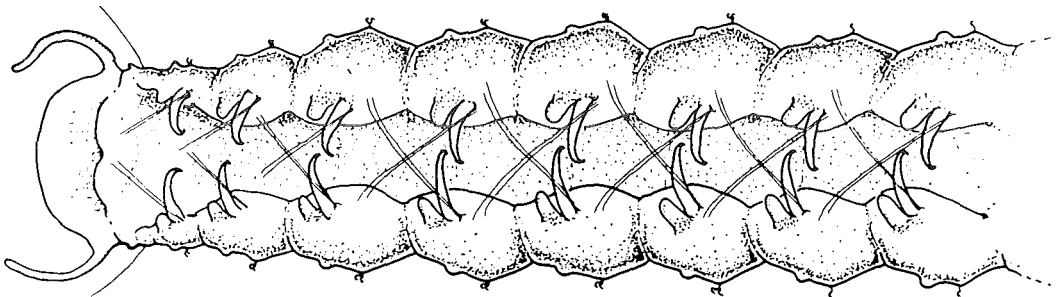
Station	Date	Depth (m)	Salinity (‰)	Percentage Silt + Clay	Mean Grain Size (mm)	Sediment Size-Class <sup>1</sup>	No. of Specimens Collected
C4	05/09/84	4	0.6	2.2 <sup>2</sup>	0.14 <sup>2</sup>	Fine Sand	17
	11/07/84	5	1.3	--	--	--	1
C7	02/01/84	2	11.4	5.5	0.50	Medium-coarse sand	33
	05/09/84	2	5.1	--	--	--	120
	08/07/84	3	19.8	4.2	0.93	Coarse sand	15
	11/07/84	2	18.2	--	--	--	6
C10	08/07/84	5	30.0	4.5	2.00	Very coarse sand	1

<sup>1</sup>after Folk (1974)<sup>2</sup>08/07/84 data

manuscript was funded by Mote Marine Laboratory's Environmental Assessment Division. The posterior region of *Boccardiella ligerica* was illustrated by C. Goggin. Technical assistance was provided by D. Latulippe, J. Culter, H. Pelta, A. Twitchell, and L. Franklin. Discussions with J. Blake of Battelle New England Marine Research Laboratory provided the impetus to write this paper. It was critically reviewed by T. Perkins of the Florida Department of Natural Resources and E. Estevez, G. Blanchard, M. Milligan, and S. Mahadevan of Mote Marine Laboratory.

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**Figure 2.** Posterior region of *Boccardiella ligerica* (Ferrogniere, 1898), dorsal view. Width of widest segment shown, about 0.45 mm.)

Fr. 8:101-115, 2 pls.

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Note added in proof: *Boccardiella ligerica* has recently been reported in the Gulf of Mexico off Texas by Wern (Contrib. Mar. Sci. 28:123-128).

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