

TESTUDINES

ERETMOCHELYS IMBRICATA (Hawksbill), **CHELONIA MYDAS** (Green), and **CARETTA CARETTA** (Loggerhead) Seaturtles. **EPIZOANS.** The Columbus Crab, *Planes* sp., is a common epizoan of oceanic stage (juvenile) Loggerhead Seaturtles (*Caretta caretta*) in the southwestern Atlantic. Columbus or Swimming Crabs, including *Planes minutus*, *P. cyaneus*, and *P. marinus*, are essentially oceanic species rarely found near the coast (Davenport. 1992. J. Mar. Biol. Ass. U.K. 77:611–620), and occur on both natural and artificial floating material (Chace 1951. Proc. U.S. Nat. Mus. 101:65–103; Dellinger et al. 1997. J. Mar. Biol. Ass. U.K. 77:185–194). Columbus Crabs occurred with 83% of southwestern Atlantic juvenile Loggerheads (Carranza et al. 2004. Mar. Turtle Newsl. 102:5–7), 82% of those found off Madeira Island (Dellinger et al. 1997, *op. cit.*), and 27% from the Mediterranean (Casale et al. 2004. J. Mar. Biol. Ass. U.K. 84:1005–1006).

On the other hand, Columbus Crabs rarely are reported to associate with other sea turtle species. Columbus Crabs were scantily reported for the Olive Ridley Seaturtle, *Lepidochelys olivacea*, in Playon de Mexiquillo, Pacific coast of Mexico (Díaz et al. 1992. Publ. Soc. Herpetol. Mex. 1:19–25) and Chile (Miranda and Moreno. 2002. Rev. Biol. Mar. Oceanogr. 37:145–146), both pertaining to *P. minutus*, while off La Jolla, California, (Hubbs 1977. California Fish Game 63:263–267) and Jalisco, Mexico (Hernandez-Vazquez and Valadez-Gonzales 1998. Cienc. Mar. 24:119–125) they pertain to *P. cyaneus*. For the Hawksbill Seaturtle, *Eretmochelys imbricata*, Chace (1951, *op. cit.*) reported *P. minutus* from Rhode Island turtles and *P. cyaneus* from Baja California, while Schärer (2003. Rev. Biol. Trop. 51:87–89) reported only 3 out of 105 Hawksbills to be associated with *P. minutus* in Puerto Rico. Schärer (2003, *op. cit.*) found them associated with small turtles, and argue they were probably arriving from a pelagic habitat. For Green Seaturtles, *Chelonia mydas*, *P. cyaneus* was recorded by Crane (1937. *apud* Chace 1951, *op. cit.*) in Baja California, by Chace (1951, *op. cit.*) in Acapulco, Santa Inez Bay, Mexico, in the Galápagos Islands, by Brown and Brown (1995. In K.A. Bjorndal [ed.], Biology and Conservation of Sea Turtles, pp. 235–240. Smithsonian Institution Press, Washington, D.C.) in Peru, by Wickstein and Behrens (2000. SCAMIT Newsl. 19:7) in California, and by Green (1998. NOAA Tech. Memo. 412:63) who reported ‘small crabs hiding among algae’ on Galápagos Green Seaturtles, which could be Columbus Crabs.

Planes cyaneus and *P. marinus* are the species that occur in the southwestern Atlantic (Juanicó 1976. Dusenía 9:145–150; Spivak and Bas 1999. J Crustacean Biol. 19:72–76; Prado and Melo 2002. Crustaceana 75:579–595), but only the former was reported as a commensal of Loggerhead Seaturtles by Carranza et al. (2003, *op. cit.*). During 2005 we found Columbus Crabs associated with Hawksbill, Green, and Loggerhead turtles and report these findings here. Crabs were identified according to Chace (1951, *op. cit.*) and Spivak and Bas (1999, *op. cit.*) and all belong to *P. cyaneus*. Records for each turtle species are given in detail below.

A juvenile Hawksbill Seaturtle (Curved Carapace Length, CCL

= 39 cm, Curved Carapace Width-CCW = 33.5 cm) was captured by handnet on 19 January 2005 off southern Brazil (27.76°S, 46.80°W) over waters ca. 1500 m in depth. Five *P. cyaneus* were found, one male with Curved Carapace Length-CL = 11.3 mm, and four females CL = 10.8, 11.4, 12.6, and 12.9 mm. The largest female was gravid and the smallest one had an autotomy at the base of the left chelae. In addition, 1 remora, *Remora* sp., and 1 Goose Barnacle, *Lepas anserifera*, were found on the turtle.

A juvenile Green Seaturtle (CCL = 40.7 cm, CCW = 37.1 cm) was captured by gillnet on 18 February 2005 off southern Brazil (29.06°S, 49.24°W) over waters 35 m deep. One gravid female crab was found (CL = 16.3 mm).

During three cruises on a pelagic longline vessel carried out in January, July, and August 2005, Columbus Crabs were found on 18 Loggerhead Turtles incidentally captured. Capture locations were between 27.51 and 33.77°S, and 44.88 and 50.28°W, over waters 266–4600 m deep. Turtle CCL ranged from 49 to 97 cm (mean = 61.3 cm). Only one female with CCL of 97 cm was adult based on minimum CCL of nesting females of 83 cm in Espírito Santo, southeastern Brazil (Baptistote et al. 2003, Chel. Conserv. Biol. 4:523–529). All others were immature in their pelagic stage. A total of 32 *P. cyaneus* were collected (mean 1.8 crabs per turtle, min = 1, max = 3), of which 16 were male and 16 female, which does not differ from the expected 1:1 ratio reported for the genus (Dellinger et al. 1997, *op. cit.*; Spivak and Bas 1999, *op. cit.*; Carranza et al. 2003, *op. cit.*). Crab measurements - CL and Carapace Width CW (mean \pm 1 SD, minimum-maximum), in mm, were: males CL - 15.6 ± 3.7 , 9.3–21.3, CW - 15.6 ± 3.6 , 9.3–21.3, N = 16; ovigerous females CL - 17.4 ± 3.1 , 12.7–20.7, CW - 17.5 ± 3.0 , 12.9–21.1, N = 7; nongravid females CL - 13.9 ± 3.7 , 10.1–22.0, CW - 14.0 ± 3.7 , 9.8–22.2, N = 9. CL and CW of gravid females were significantly larger than that of nongravid (Mann-Whitney U = 13, $p = 0.05$, both CL and CW); males and females (gravid and nongravid pooled) did not differ in CL and CW (Mann-Whitney test U = 119, $p = 0.73$ and U = 123.5, $p = 0.87$, respectively). The 22% of crabs with pereopod autotomy was similar to 25% reported for *P. minutus* in Madeira Is. (Dellinger et al. 1997, *op. cit.*) and lower than 45% reported for *P. marinus* in Argentina (Spivak and Bas 1999, *op. cit.*).

The scarcity of records of *Planes* spp. on adult Loggerheads or on other sea turtle species could be related to the preference of Columbus Crabs for deep waters as opposed to the shallow habitats used by all nesting turtles, and large immature Green and Hawksbill Seaturtles. However, because of opportunistic commensalisms with crabs, all hard-shelled turtles are equally prone to being colonized by crabs when in deep waters, as shown by this study.

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