

Short Note

Records of Whalesuckers (*Remora australis*) on Short-Beaked Common Dolphins (*Delphinus delphis*) in the Gulf of California, Mexico

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The largest member of the eight species of the Echeneidae family is the whalesucker (*Remora australis*; Bennett, 1840), which can reach up to 76 cm in total length (TL; Eschmeyer et al., 1983). This echeneid occurs mainly in tropical and temperate water at a depth range of 0 to 50 m (Eschmeyer et al., 1983; Robertson & Allen, 2015). It is most often found attached to cetaceans, which allows it to feed on its feces or regurgitations, external parasites, and skin (Sazima et al., 2003; Fertl & Landry, 2018).

Whalesuckers are commonly observed in species such as the blue whale (*Balaenoptera musculus*), fin whale (*Balaenoptera physalus*), long-beaked common dolphin (*Delphinus delphis bairdii*), bottlenose dolphin (*Tursiops truncatus*), spinner dolphin (*Stenella longirostris*), and the killer whale (*Orcinus orca*) (Notarbartolo di Sciara & Watkins, 1980; Fertl & Landry, 1999; Guerrero-Ruiz & Urbán, 2000).

Most of the records of echeneid–cetacean interactions have been made using photographs due to the difficulties of the obtention of echeneid specimens (Sazima et al., 2003; Silva-Jr & Sazima, 2003; Fertl & Landry, 2018). These observations usually lead to the assumption that any echeneid spotted on cetaceans is *R. australis*; however, this could be considered as problematic as the identification of echeneids to species level is difficult without the available specimen in hand (Fertl & Landry, 2018).

The present study constitutes the first documented and confirmed record of *R. australis*

obtained from short-beaked common dolphins (*Delphinus delphis*), and the first record of *Remora* sp. from long-beaked common dolphins (*D. delphis bairdii*) from the Gulf of California, Mexico.

A total of ten photographs of unidentified echeneids on long-beaked common dolphins were taken during two scientific expeditions in La Paz Bay: in the southern Gulf of California on 7 March 2014 (24° 17' 18" N; 110° 21' 4" W) and on 5 June 2014 (24° 13' 21" N; 110° 21' 45" W), respectively, using a reflex camera Canon EOS Rebel T6 with a resolution frame of 2,034 × 1,321 and 3,130 × 1,921 pixels and a Canon 75–300 mm telephoto lens (Figures 1 & 2). In both expeditions, only one dolphin with its own respective echeneid was observed. The estimated size of the echeneid was 30 to 40 cm, and it was observed on the trunk of each dolphin near the dorsal fin. The dolphin pods were relatively small, with 30 to 40 long-beaked dolphins in each expedition. In both occasions, the photographs were obtained at an estimated distance of 25 to 30 m. These echeneids were not taxonomically identified at a taxonomic resolution above the genus of *Remora* sp. due to the inconvenience of identifying species from photographic records (Eschmeyer et al., 1983; Guerrero-Ruiz & Urbán, 2000; Fertl & Landry, 2018).

Additionally, three echeneid specimens were obtained on 13 February 2018 during a massive stranding of 54 short-beaked common dolphins on a rocky beach located in the southern part

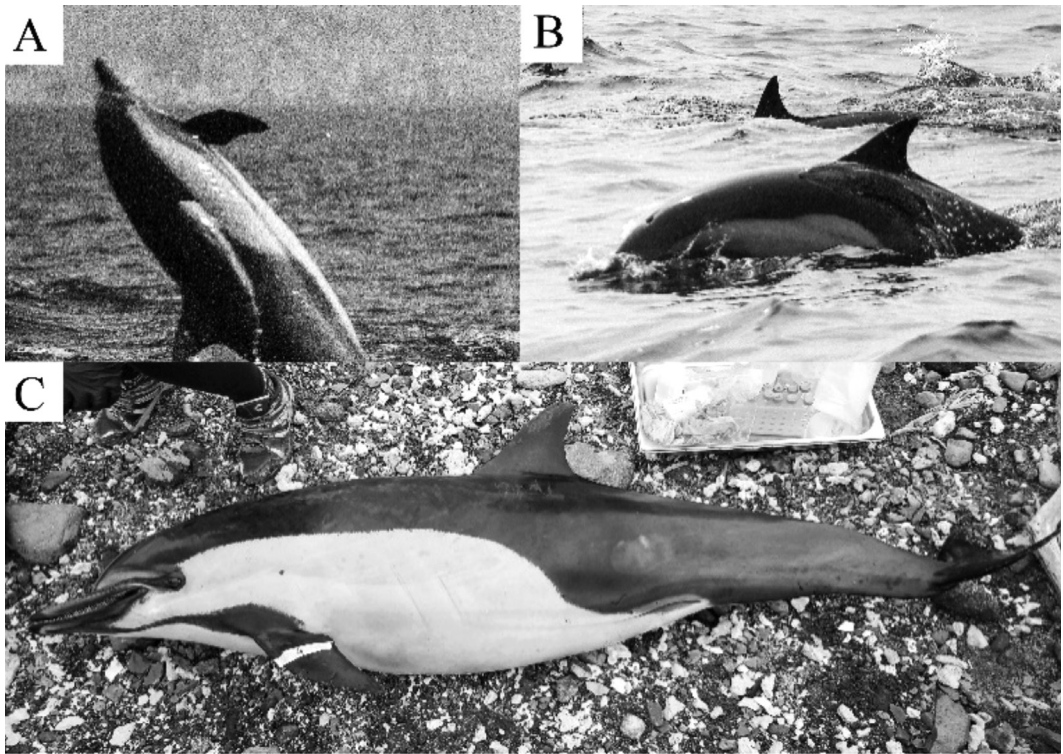


Figure 1. Photographic records of *Remora australis* attached on *Delphinus delphis bairdii* (A, B) and a stranded female of *D. delphis* with a head disc mark where one of the reported echeneids was attached (C)

of La Paz Bay (24° 15' 25" N; 110° 20' 7" W). Because the focus of the stranding response was to rescue the surviving dolphins, two echeneids were collected from the ground after they fell off hauled living dolphins, while one more echeneid was collected from its dead host (Figure 3).

The dolphin species from both scientific expeditions and the massive stranding were identified via morphological traits, including a slender body, moderately long beak, falcate dorsal fin, gray-brown pigmentation of the dorsal surface, white belly, golden-yellow thoracic patch on the sides, and the absence of a grey stripe from the area above the flippers to the anal region in the case of *D. delphis* (Figure 1). Regarding *D. delphis bairdii*, the presence of this last trait was used for determining the difference between this subspecies and *D. delphis* (Niño-Torres et al., 2011; Jefferson et al., 2015; Perrin, 2018).

Echeneid specimens were stored in the Laboratory of Fishes Ecology at the Centro Interdisciplinario de Ciencias Marinas of Instituto Politécnico Nacional (CICIMAR-IPN) in La Paz, Mexico. The three specimens were identified as *R. australis* due to a robust, elongated dark body; a long head disc; 24 to 28 plates; an operculum without spines; simple teeth on jaws; and a lower protractile jaw

(Eschmeyer et al., 1983; Robertson & Allen, 2015; Figure 3). The two echeneids collected from the ground measured 32.5 and 54.3 cm TL, with 27 and 26 dorsal plates, respectively. The echeneid attached to the 1.84 m female dolphin carcass measured 34.2 cm TL with 25 dorsal plates. This echeneid was found on the left side of the trunk, near the genital slit (Figure 1).

Whalesuckers and other species of echeneids are rarely collected from their hosts (Fertl & Landry, 1999; Siva-Jr & Sazima, 2008). Although there are museum records of collected *D. delphis* from the Central Eastern Pacific during the years 1973 to 1975 (No. 73-344, 74-092, 79-179, 79-334, and 79-335; Scripps Institution of Oceanography [SIO], 2018), there are few published scientific studies, photographs, or further information describing the potential symbiosis between this echeneid species and cetaceans in the Eastern Pacific Ocean (Follet & Dempster, 1960; Fertl & Landry, 1999). In Mexican waters, this echeneid has been photographed on bottlenose dolphins and killer whales, but it has never been collected and formally reported from living or dead animals (Guerrero-Ruiz & Urbán, 2000; Niño-Torres et al., 2011).

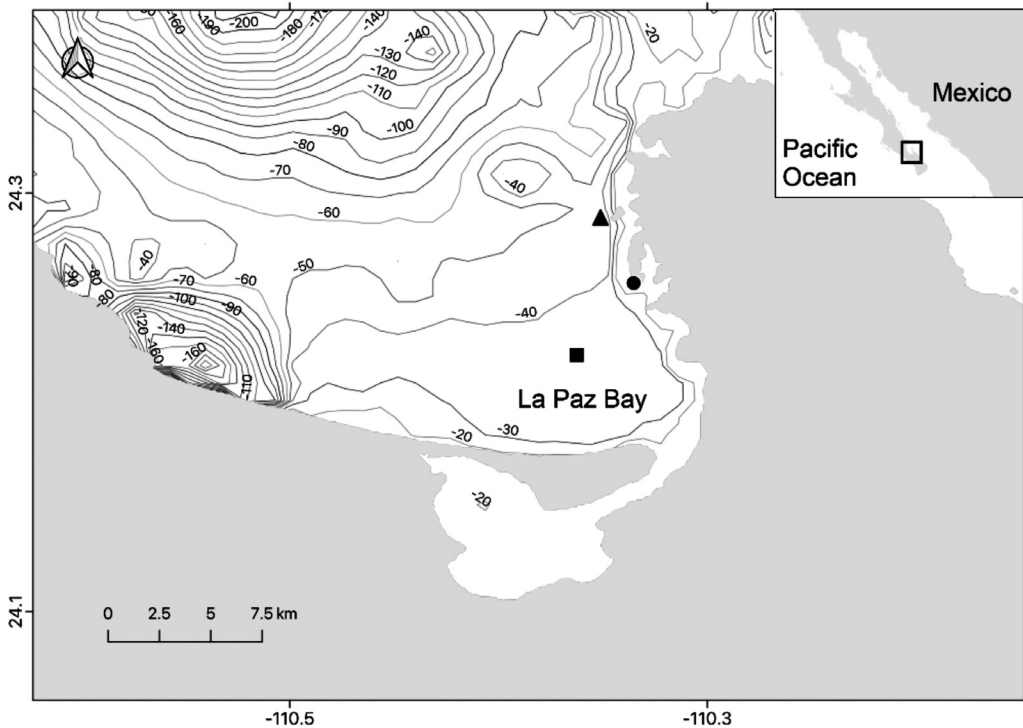


Figure 2. Reported locations of *D. delphis bairdii* (▲; ■) and *D. delphis* (●) with *R. australis* in La Paz Bay, Mexico; bathymetry is reported in meters.

Commensalism of the echeneid–cetacean interaction could be one of the reasons for the attachment of the whalesucker to its host (Sazima et al., 2003). However, other benefits, including transportation, enhanced respiration, protection from predators, and increased courtship potential have also been suggested (Fertl & Landry, 1999, 2018).

Regarding reproduction of the echeneids, the association with cetaceans could represent benefits to the echeneid by increasing its chance to mate as host fidelity has been observed in highly social odontocetes such as spinner dolphins (Silva-Jr & Sazima, 2003). In this study, the observed *R. australis* on *D. delphis* could reinforce this statement as this species aggregate in schools of hundreds of individuals (Silva-Jr & Sazima, 2003; Niño-Torres et al., 2011). However, the evidence of this interaction is out of the scope of the present work as the presence of this echeneid has been widely recorded on other less social cetaceans such as blue or fin whales (Fertl & Landry, 1999).

In future studies, cetacean strandings in temperate and tropical areas might also provide a good opportunity to explore this cetacean–echeneid interaction by using the size, sexual ratio, and

reproductive status to provide useful information about the life history stages of echeneids.

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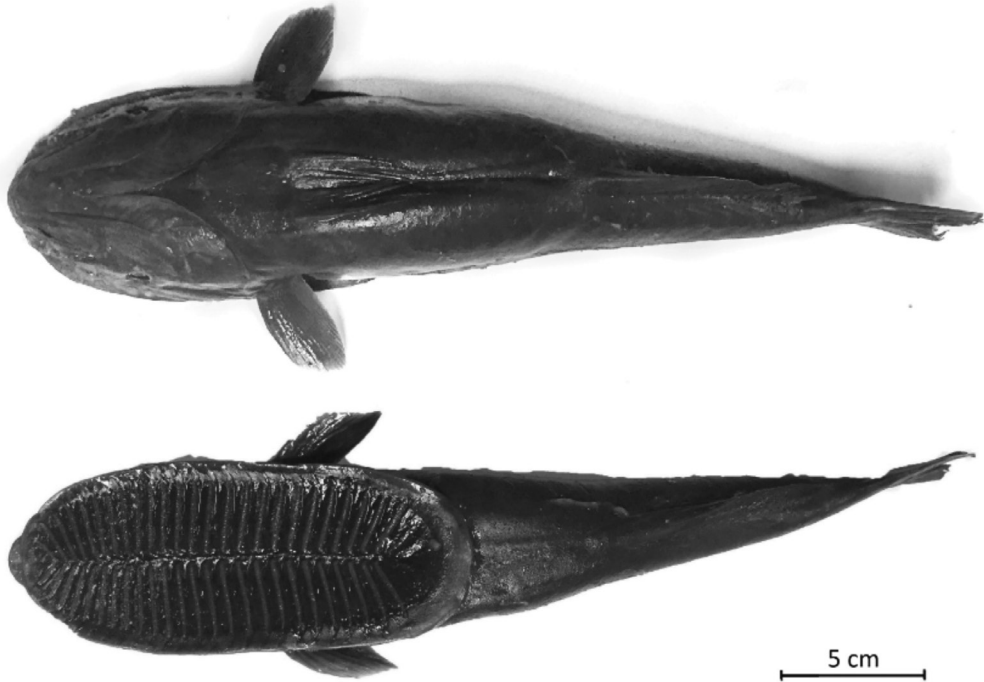


Figure 3. One of the three *R. australis* collected from stranded *D. delphis* in La Paz Bay, Mexico

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