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Eric Miller

MBC Applied Environmental Sciences, emiller@mbcnet.net

Wayne Dossett

MBC Applied Environmental Sciences, wdossett@mbcnet.net

Jennifer L. Rankin

MBC Applied Environmental Sciences, jrankin@mbcnet.net

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Clarifying the Northern Extent of the Diamond Stingray (*Dasyatis dipterura*) in Southern California

Eric F. Miller, Wayne H. Dossett, and Jennifer L. Rankin

MBC Applied Environmental Sciences, 3000 Red Hill Ave., Costa Mesa, CA 92626
emiller@mbcnet.net

Accurate records of biogeographic distributions (latitude and elevation) are becoming increasingly important as species shift their distribution in response to global climate change (Walther et al. 2002). The Southern California Bight is a transition zone between the Oregonian and San Diegan biogeographic zones (Horn et al. 2006). Therefore, range extensions are commonly documented in the area (Pondella 1997; Lea and Rosenblatt 2000; Miller and Curtis 2008; Moore et al. 2011; among others). On 27 October 2011, a single Diamond Stingray (*Dasyatis dipterura*) was taken in Marina del Rey harbor (33° 58.973'N 118° 27.245'W) in Marina del Rey, California during an environmental survey using a 7.6-m otter trawl at a depth of 4.3 m. The individual weighed 1.65 kg and measured 247 mm disc width (Figure 1). Key characters used in the identification to differentiate it from other common species, such as Round Stingray (*Urobatis halleri*) and Bat Ray (*Myliobatis californica*), include the disc shape and the presence of a keel on the tail. The tail keel is unique to Diamond Stingray in comparison to both Round Stingray and Bat Ray. Being alive and in apparently good health, the animal was photographed and released.

Diamond Stingray nomenclature has a multifaceted history. Originally described in a May 1880 publication by Jordan and Gilbert (1880) and again by Jordan and Gilbert (1882) as *Dasybatis dipterurus*, the current nomenclatural combination first appeared in Jordan and Evermann (1896). Garman (1880) described *Tygon brevis* in his October 1880 review of collections at the Harvard University Museum of Comparative Zoology. Garman (1913) synonymized all prior names, including *T. brevis*, under *Dasybatus brevis*, but lacked any reference to Jordan and Gilbert (1880). Instead, Garman (1913) included Jordan and Gilbert (1881), which introduced the name *Dasybatus dipterurus*. Nishida and Nakaya (1990) followed Garman (1913) and treated *Dasyatis dipterurus* (Jordan & Gilbert, 1880) with *Dasybatus brevis*. Eschmeyer (1998) noted *dipterurus* predated *brevis* (May and October 1880, respectively) and therefore synonymized *brevis* under *dipterurus* and recognized *dipterura* as the correct species name. Accordingly, Nelson et al. (2004) removed reference to *brevis* from North American waters in recognition of Eschmeyer's clarification of the species' nomenclature. We utilize the presently accepted *Dasyatis dipterura* (Page et al. 2013).

The Diamond Stingray northern range limit is no less enigmatic than its nomenclature. Current literature (Love et al. 2005) lists the northern range endpoint as central California (Grove and Lavenberg 1997 as *Dasyatis brevis*), although the true northern extent is unsubstantiated by a voucher specimen collected north of 33.7°N latitude, or Long Beach, California [LACM 48829.001; Fishnet2 (www.fishnet2.net); SIO (<http://collections.ucsd.edu>); MCZbase (<http://mcbzbase.mcz.harvard.edu>)]. Prior work recorded a range to southern California and “possibly British Columbia” (Hart 1973). The Hart reference was founded on records of a *Dasyatis* sp. being caught in Kyuquot on



Fig. 1. Two pictures taken of a live Diamond Stingray (*Dasyatis dipterura*) collected on 27 October 2011 using a 7.6-m otter trawl in Marina del Rey harbor, Marina del Rey, California. Top image shows the disc and the lower image displays the tail with both a spine and a keel.

Vancouver Island, British Columbia (Williamson 1930). Therefore, the true identity of the species occurring in British Columbia is uncertain and standing as the northern extent of *D. dipterura* is unconfirmed (Ebert 2003; Smith personal communication). Diamond Stingray was included in the 1993 list of fishes of British Columbia in deference to Hart, but noted a lack of voucher specimens. Its inclusion was for continuity only as a “hypothetical occurrence” (Gillespie 1993). The Resources Inventory Committee (2002)

also excluded Diamond Stingray from their checklist of British Columbia fishes due to the lack of a voucher specimen for the earlier references.

Polling southern California ichthyologists and field sampling personnel resulted in one confirmed record taken in Santa Monica Bay area or from points north of the bay. Diamond Stingray was reportedly taken along the Malibu coast (nominally 34° 1.0'N 118° 47.0'W) during surveys of surfzone fishes (C. Lowe, personal communication), or approximately 30 km upcoast of Marina del Rey. No size information or photographs were available for the Malibu collection. All other reported records were from south of Palos Verdes Peninsula (nominally 33° 44.0'N 118° 20.0'W), mostly along the beaches of Long Beach and San Diego where catches were historically more common. We conclude that the verifiable northern range limit of Diamond Stingray is Santa Monica Bay, California based on the Malibu and Marina del Rey collections reported here. The lack of verifiable collections north of Santa Monica Bay precludes extending this range any farther poleward.

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