

ESTABLISHMENT OF A NEW BLACK SKIMMER BREEDING COLONY IN SOUTHERN CALIFORNIA

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Batiquitos Lagoon (33° 05' N, 117° 17' W) is a 241-hectare nontidal coastal wetland situated in northern San Diego County, California, within the city of Carlsbad, approximately 56 km north of San Diego and 145 km south of Los Angeles (Figure 1). The lagoon extends approximately 4 km inland from the Pacific Ocean and ranges in width from 0.2 to 0.4 km, with steep canyon slopes along the southern border and more gradual slopes to the north.

Over the last century, the coastal wetlands of northern San Diego County have been subjected to increased siltation and subsequent reduction of tidal action (Coastal Conservancy 1986, City of Carlsbad 1990, Appy 1991). In an attempt to reverse these detrimental effects, an enhancement plan is currently being implemented that will permanently open Batiquitos Lagoon to the Pacific Ocean through dredging and the stabilization of the inlet. The enhancement plan will ultimately create five nesting sites, totaling 13 hectares, designed to accommodate the Least Tern (*Sterna antillarum*) and the Snowy Plover (*Charadrius alexandrinus*). The first three nesting sites were created prior to the 1995 breeding season. During 1995, one of the nesting sites was colonized by 14 pairs of the Black Skimmer (*Rynchops niger*). Their nesting effort represents the first record of breeding by this species at Batiquitos Lagoon and in northern San Diego County.

The site where Black Skimmers nested at Batiquitos Lagoon, referred to as W-2 (Figure 1A), is in the west basin of the lagoon adjacent to Highway 101. Its construction began on 19 November 1994 and was completed by 5 December 1994. Approximately 45,900 m³ of medium to coarse sand with shell fragments was dredged from the central basin of the lagoon and deposited at W-2, covering approximately 2 hectares. The plateau of the nesting site stands at +9.5 National Geodetic Vertical Datum (NGVD) with a gradual decrease in elevation from west to east. Fencing was installed along the north, south, and west sides of the site to restrict use by humans and help reduce predation.

Because of the sensitivity of Black Skimmers to human disturbance during the pre-laying, egg-laying, and early incubation phases (Safina and Burger 1983, Schew and Collins 1990), we observed from outside the colony until the initial nests were established. Subsequently, we checked nests within the colony three times a week for 15 minutes between 0800 and 1100 during August and September.

After the first observations at the lagoon on 20 April, the number of Black Skimmers increased from 18 individuals on 12 May to a high of 81 on 18 August. Following a large influx of 50–55 skimmers, nesting was initiated on 30 July and continued through 21 August. The incubation period for all nests extended from 30 July to 13 September, and hatching dates ranged from 22 August to 13 September. The first juvenile fledged on 25 September; the last, on 17 October. The skimmers nesting at Batiquitos Lagoon included two uniquely banded adults hatched at the Bolsa Chica Ecological Reserve (Orange County). Flights by Heermann's Gulls (*Larus heermanni*), Western Gulls (*Larus occidentalis*), and a White-tailed Kite (*Elanus leucurus*) near the colony elicited intensive chasing by small groups or individual skimmers. No nests were lost to predation.

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In the 14 nests, skimmers laid a total of 37 eggs; of these, 16 hatched (32% hatching rate). Clutch sizes ranged from 1 to 4 [mode 3, mean 2.6, standard error (SE) 0.4], while the number of chicks hatched per nest ranged from 0 to 3 (mode 0, mean 0.9, SE 0.5). Seven chicks successfully fledged (0.5 fledglings per pair). The breeding "colony," situated along the eastern edge of the W-2 site, was 15.1 m in length and 10.8 m in width. The distance between nests varied from 1.9 to 3.9 m (mean 2.6 m, SE 0.3 m). The nest elevations ranged from +4.6 to +5.7 NGVD.

The Batiquitos Lagoon colony did not become established until atypically late in the season (Tomkins 1951, Erwin 1977, Erwin 1979, Safina and Burger 1983, Burger

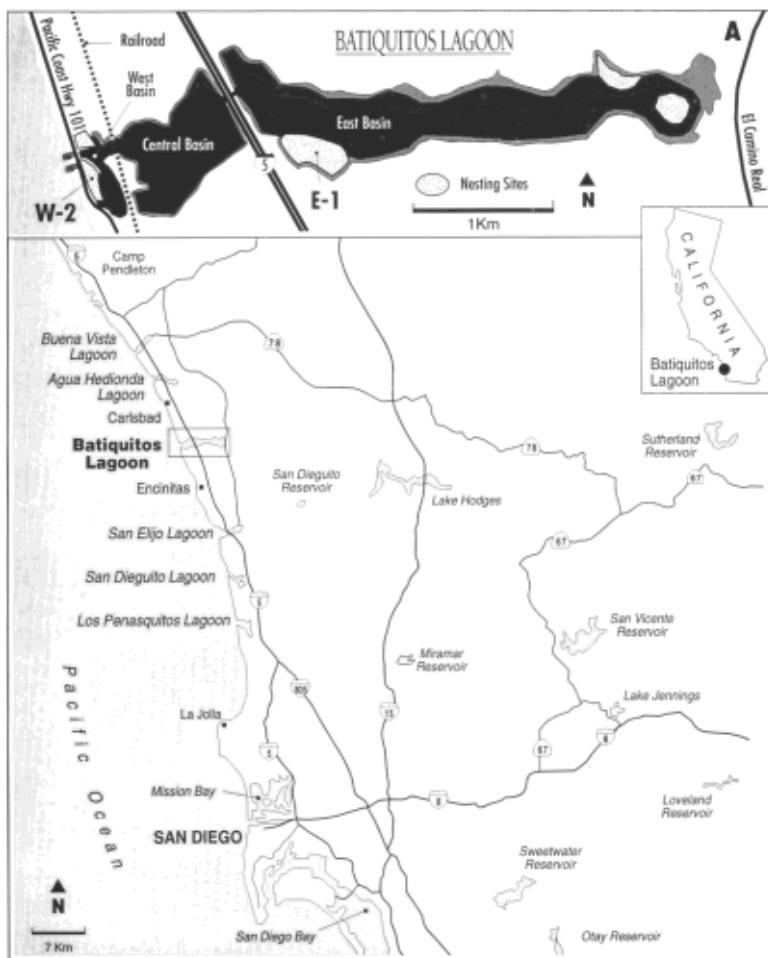


Figure 1. Batiquitos Lagoon, San Diego County, California. A, location of nesting sites.

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and Gochfeld 1990). However, Black Skimmers nesting for the first time at Bolsa Chica Ecological Reserve in 1988 similarly initiated nesting in early August (C. T. Collins pers. comm.). Exceptionally late nesting may be more common when colonies are first being initiated.

Erwin (1977) suggested that the Black Skimmer may be adapted to colonizing new or ephemeral sites rapidly. Small colonies on the Atlantic Coast have been shown to have a high incidence of colony abandonment and reestablishment (Erwin et al. 1981, Burger and Gochfeld 1990). The skimmer's comparatively prolonged breeding season (Burger and Gochfeld 1990, Schew and Collins 1991) may give it nesting or renesting flexibility, within a year or in a subsequent year, in response to disruptions like predation, flooding, and perhaps interspecific displacement in crowded mixed colonies.

The recent nesting at Batiquitos Lagoon Ecological Reserve is further evidence of the Black Skimmer's range expansion. The five nesting sites incorporated in the Batiquitos Lagoon Enhancement Plan will provide additional habitat to support further skimmer colonies and help stabilize this expanding population. On 4 June 1996, 10 pairs of Black Skimmers were nesting at Batiquitos Lagoon, incubating a total of 21 eggs.

This work is a result of the Batiquitos Lagoon Enhancement Project, a joint restoration project of the city of Carlsbad and the port of Los Angeles in cooperation with the United States Fish and Wildlife Service, California Department of Fish and Game, National Marine Fisheries Services, and the California State Lands Commission. We are especially grateful to Justine Gibb, Don Kogle, and Roxanne Crestman for assistance in the field. Special acknowledgement is due of the forethought, continued support, and assistance of Ralph Appy, John Cahill, Betty Dehoney, Tracy Notebaert, Gary Wayne, Angus Whelchel, and the tireless efforts of Aaron English. We must recognize also Jim Van Norman and Nick Gennaro. The comments of Charles Collins and Philip Unitt improved the manuscript.

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THE NAME OF THE CRAVERI BROTHERS' MURRELET

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Federico Craveri was a chemist, geologist, and naturalist who resided in Mexico for 18 years beginning in 1840. In 1847 he was joined for two years by his brother Ettore, who shared similar interests. Upon the death of their father, Ettore returned home to Italy to attend to the family museum in Brà, near Turin. Later, during his investigation of the economic potential of guano deposits on islands in the Gulf of California in 1856, Federico obtained specimens of a new species of murrelet, which, after considerable delay, was described and named by Tomasso Salvadori (1865) as *Uria craveri* (now *Endomychura* or *Synthliboramphus craveri*).

Practically from the outset this was known in North American literature as "Craveri's Murrelet," as, for example, in all six editions of the American Ornithologist's Union Check-list of North American Birds (1886-1983). Numerous sources concerning the origin of bird names invariably treat this murrelet as being dedicated solely to Federico Craveri (Coues 1882, Palmer 1928, Gruson 1972, Choate 1973, Jobling 1991). This is perpetuated even in the superb series of biographies by Mearns and Mearns (1992), from which the preceding biographical information was extracted, the error being the result of the authors' having had access only to an incomplete copy of Salvadori's paper that did not include the dedication (R. Mearns in litt. 15 July 1995).

Federico was the only one of the two brothers that Salvadori (1865:388) mentioned by name, and he was also identified as the collector of the type specimen, which has probably contributed to various authors' having long overlooked the fact that the species was clearly named for both brothers, as shown in Salvadori's original dedication (1865:388): "If it should truly be new I propose to name it *Uria Craveri* in memory of the generosity with which the brothers Mssrs. Craveri of Brà [*i signori fratelli Craveri di Brà*] have enriched the Turin Museum with many species of birds from Mexico and California" [my translation from the original Italian].

Had Salvadori intended the name for Federico alone, he would surely have used the spelling "*craverii*," just as he named *Lamprocolius defilippii* in the same paper in honor of Filippo De Filippi. The unmodified family name "*craveri*" was surely intended as a noun in apposition, probably deliberately to avoid the more cumbersome genitive plural "*craveriorum*," meaning "of the Craveris." Thus, although the scientific name is not subject to emendation, in the interest of historical accuracy it should be noted that the English name "Craveri's Murrelet" is incorrect. "Craveris'