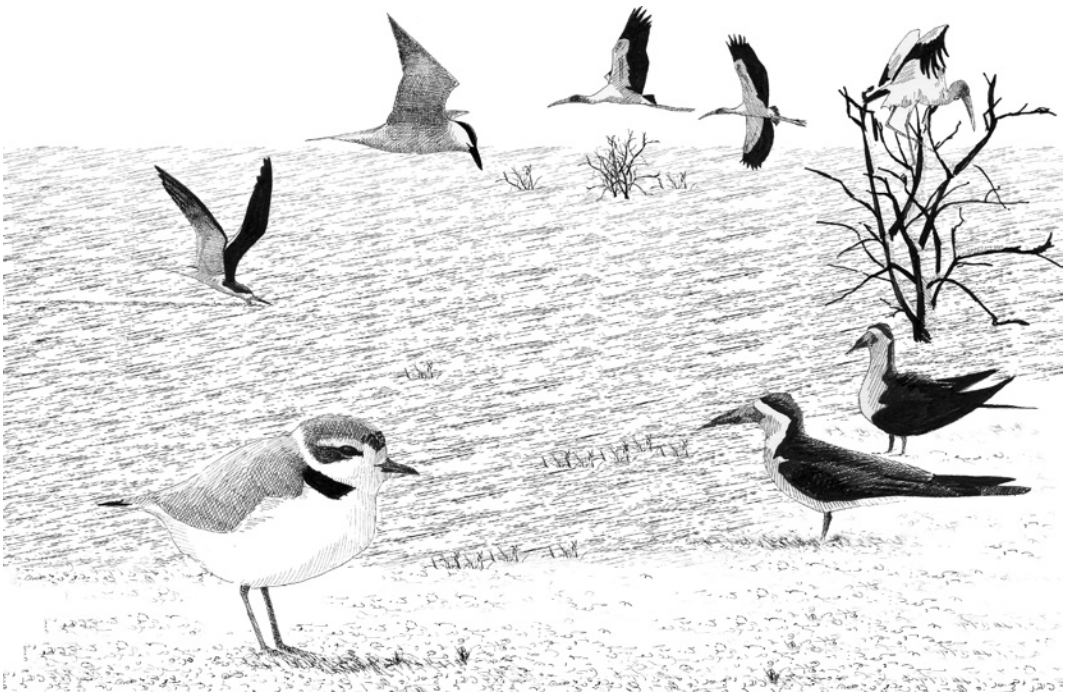


## II

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# SPECIES ACCOUNTS

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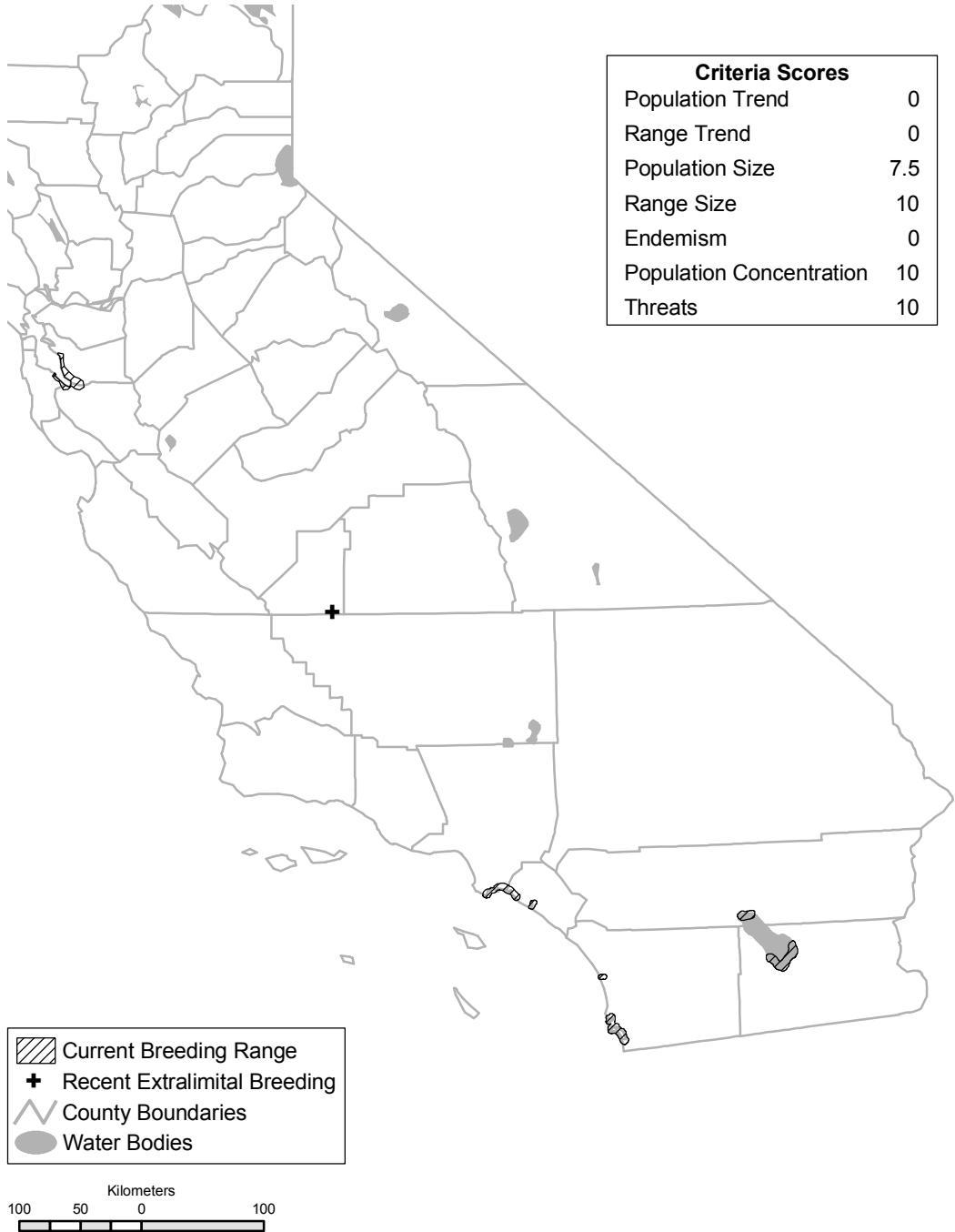
*Andy Birch*

PDF of Black Skimmer account from:

Shuford, W. D., and Gardali, T., editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

# BLACK SKIMMER (*Rynchops niger*)

KATHY C. MOLINA



Current breeding range of the Black Skimmer in California. After first recorded breeding in the state at the Salton Sea in 1972, increased greatly in abundance and range to include south San Diego Bay (1976), Bolsa Chica Ecological Reserve (1985), Upper Newport Bay (1986), Seal Beach NWR (1986), south San Francisco Bay (1994), Batiqitos Lagoon (1995), and Los Angeles harbor (1998). In winter, most birds leave the Salton Sea, but on the coast they occur north in numbers to Santa Barbara and uncommonly to San Francisco Bay.

**SPECIAL CONCERN PRIORITY**

Currently considered a Bird Species of Special Concern (breeding), priority 3. Included on the list since its inception (Remsen 1978, 3rd priority; CDFG 1992).

**BREEDING BIRD SURVEY STATISTICS FOR CALIFORNIA**

Data inadequate for trend assessment (Sauer et al. 2005).

**GENERAL RANGE AND ABUNDANCE**

One subspecies recognized in North America, *R. n. niger*. On the Atlantic coast, breeds from southern Massachusetts, Connecticut, New Jersey, and New York south to southern Florida and along the Gulf Coast west to Texas and south to the Yucatán Peninsula. In the West, breeds primarily in coastal southern California and the Salton Sea (Collins and Garrett 1996, AOU 1998), but a few pairs now nest in central and northern California (Collins and Garrett 1996, Layne et al. 1996). In western Mexico, breeds very locally from Baja California Norte south to Sinaloa, Nayarit, and Colima (Howell and Webb 1995, Molina and Garrett 2001, Palacios and Mellink 2003). Winters on the Atlantic coast from North Carolina south to Florida and along the Gulf coast west to Texas and south to eastern Mexico and the West Indies (AOU 1957, Gochfeld and Burger 1994). On the Pacific coast, winters from southern California south to Baja California and the Gulf of California, and from Sonora on the west coast of Mexico south to El Salvador and Nicaragua (AOU 1957, Howell and Webb 1995).

Generally nests in colonies containing a few to several thousand nests. Largest colonies occur on the Gulf Coast, with some sites in Louisiana and Texas containing 2000 pairs or more during the 1980s (Gochfeld and Burger 1994). Average colony sizes along the Atlantic coast during that same period, ranging from 200 to 500 pairs (Gochfeld and Burger 1994), are comparable to those in interior and coastal southern California.

**SEASONAL STATUS IN CALIFORNIA**

Although breeding colonies on the coast and in the interior are generally occupied from mid-April through September and occasionally into mid-October, the first eggs appear in early May and last fledged young occur by late September (Gochfeld and Burger 1994, Molina 1996). The species

is a year-round resident in coastal Los Angeles, Orange, and San Diego counties, and more recently in Santa Clara County (NAB 57:253). Winters locally in substantial numbers on the coast of southern California from Santa Barbara to San Diego counties (Collins and Garrett 1996, Gazzaniga 1996). Small numbers at Morro Bay, San Luis Obispo County, appear to be mainly spring and fall migrants (T. Edell in litt.). Usually scarce or absent from the Salton Sea by mid- to late October, with occasional birds remaining as late as December.

**HISTORIC RANGE AND ABUNDANCE IN CALIFORNIA**

The species was not recorded in the state prior to 1944 (Grinnell and Miller 1944).

**RECENT RANGE AND ABUNDANCE IN CALIFORNIA**

The Black Skimmer breeds on the coast from San Francisco Bay south to south San Diego Bay and in the interior at the Salton Sea (see map). It was first recorded from California in 1962, when a single adult was discovered at the mouth of the Santa Ana River, Orange County (AFN 17:66–71). The first documented breeding was at the south end of the Salton Sea, Imperial County, in 1972 (McCaskie et al. 1974). Black Skimmers were subsequently discovered breeding on the coast in south San Diego Bay, San Diego County, in 1976 (AB 30:1004). Although their breeding range since has expanded north along the Pacific coast to San Francisco Bay, the majority of the breeding population occurs in coastal southern California and the Salton Sea. Nesting sites and the year of colonization, given in chronological order (citation is Collins and Garrett 1996 unless stated otherwise) are: Bolsa Chica Reserve (1985), Upper Newport Bay (1986), and Seal Beach NWR (1986), Orange County; south San Francisco Bay, Santa Clara and Alameda counties (1994, Layne et al. 1996); Batiquitos Lagoon, San Diego County (1995, Whelchel et al. 1996); south San Francisco Bay, San Mateo County (1996, Sequoia Audubon Society 2001); and Los Angeles Harbor, Los Angeles County (1998, FN 52:503). In the south-central interior of the state, one pair bred at the Tulare Lake Drainage District South Evaporation Basin in the Tulare Lake basin of Kings County in 1986 (AB 40:1251).

Collins and Garrett (1996) estimated the state's total breeding population to be 1200 pairs in

1995. At this time, the sites supporting the largest breeding populations were the Salton Sea, coastal Orange County (Bolsa Chica and Upper Newport Bay), and south San Diego Bay, which collectively continue to hold over 90% of the annual statewide population. The median colony size at the Salton Sea was 300 pairs (range = 80–487) from 1990 to 2000 (Molina 1996, 2004); the median was higher, at 381 pairs, but colony size more variable (range = 6–622 pairs) from 2001 to 2005 (Molina unpubl. data). Reproductive success at the Salton Sea has likewise varied. Although several hundred adults were present there in both years, only 6 pairs in 2002 and 99 pairs in 2003 attempted to nest. In 2004, nearly 400 pairs were present but almost all attempts were unsuccessful, whereas in 2005 over 600 pairs nested, with high reproductive success.

The median number of nest attempts at Bolsa Chica from 1990 to 2000 was 295 (range = 162–438; Collins and Garrett 1996, C. Collins unpubl. data). From 2001 to 2004, the number of nest attempts at this site ranged from 200 to 400, and there were about 150 pairs in 2005 (P. Knapp pers. comm.). The colony at Upper Newport Bay has been continuously active from 1990 to 2005, although it has not been consistently censused. Counts taken there in 1995 and 1996 indicated that 350 to 400 pairs nested (M. Taylor pers. comm.), and similar numbers likely nested in 2005 (C. Collins pers. comm.).

Assessment of population size at San Diego Bay is less certain, as neither the number of pairs nor the number of nest attempts have been consistently reported for all years during the 1990s. For the years 1993, 1994, 1997, 1998, and 2000, the median number of pairs at the salt works was 310 (range = 187–510; Stadtlander 1993, Terp and Pavelka 1999, B. Collins and R. Patton unpubl. data). From 2001 to 2005, the median estimate was 331 pairs (range = 268–440; B. Collins and R. Patton unpubl. data). At Los Angeles Harbor, skimmers made over 100 nest attempts in 1999 and 2000 but have made none since 2002, when only three pairs nested (K. Keane unpubl. data). Nesting has been sporadic at Seal Beach NWR since colonization in 1986; fewer than five pairs nested in 1999 and 2000 (C. Collins unpubl. data). Through 2003, up to 26 pairs continued to nest on two constructed islands in Batiquitos Lagoon (Unitt 2004). In south San Francisco Bay, up to two dozen pairs have nested recently, some as far north as Redwood Shores in southern San Mateo County (C. Strong pers. comm.). Although no statewide population surveys have

been conducted, the state's breeding population in 2005 probably was between 1400 and 1500 pairs. However, because the number of pairs at the Salton Sea in that year was much higher than usual, the statewide average from 2001 to present is closer to 1200–1300 pairs.

## ECOLOGICAL REQUIREMENTS

Because of its ground nesting habit, this highly social colonial waterbird requires large areas of bare earth sufficiently isolated from terrestrial predators and other disturbances. Colonies most often form on small constructed islands or on isolated sections of eroded impoundment levees. The nesting colony at Los Angeles Harbor formed on a temporary dredged fill site slated for development. Skimmers usually nest with terns but may form colonies by themselves (Molina 2004). Nesting associates commonly include Caspian (*Hydroprogne caspia*), Elegant (*Thalasseus elegans*), Gull-billed (*Gelochelidon nilotica*), and Royal (*Thalasseus maximus*) terns, Black-necked Stilts (*Himantopus mexicanus*), and American Avocets (*Recurvirostra americana*).

In winter, flocks commonly roost on urban beaches well above the tide line or on mud flats in estuaries. Beach sites that are habitually used by skimmers are often associated with estuaries or protected harbors and are near the mouths of rivers or other drainage channels.

Skimmers forage for small fish and possibly crustaceans (Leavitt 1957) by cutting or "skimming" the water's surface with the lower mandible in the calm shallows of harbors, lagoons, bays, estuaries, ponds, and river channels. Thought to be largely nocturnal feeders, skimmers forage singly or in flocks of three to four individuals. At the Salton Sea, a marked peak in foraging activity appears to occur at or near dusk, although feeding activity occurs throughout the day, especially when adults are provisioning young (Molina unpubl. data). The foraging activity of skimmers nesting at Bolsa Chica was significantly greater at night than during the day, with distinct peaks at dusk and dawn (Wilson 1995). During the late 1990s, young tilapia (*Oreochromis/Tilapia* spp.) appeared to dominate the diet at the Salton Sea (Molina pers. obs.). At Bolsa Chica, skimmers foraged in fresh as well as estuarine and marine waters. In 1993 and 1994, 55% of observed prey was of marine origin, whereas about 30% and 7% were obtained from estuarine and freshwater areas, respectively (Wilson 1995). In those years, the most abundant prey items brought to the nesting

colony were members of the family Atherinidae: Topsmelt (*Atherinops affinis*), California Grunion (*Leuresthes tenuis*), and Jacksmelt (*Atherinopsis californiensis*). These three species combined accounted for nearly 45% of the total daytime prey observations, followed by the Northern Anchovy (*Engraulis mordax*) with 17% (Wilson 1995).

### THREATS

Perhaps the greatest threat to the long-term viability of the breeding population is the apparent shortage of suitable open nesting habitat and its continued loss as a result of erosion or vegetation growth on small islets (Molina 2004). The intermittent breeding success and colony-wide failures of skimmers at the Salton Sea during the 2000s appear to be a function of the continuing decline in lake levels through water diversions (Molina 2004), thereby reducing the suitability of existing nesting sites. An increasing number of near-shore colony locations, including Johnson Street, Obsidian Butte, Morton Bay, and Elmore Ranch, currently lack adequate isolation during the nesting season; mammalian predators caused known colony failures at the first three sites in 2004 and at Morton Bay in 2005 (Molina pers. obs.).

Detrimental interactions with other species also suggest that suitable nesting habitat may be limiting for California's Black Skimmers. Where skimmers nest on small islets and in proximity to highly aggregated colonies of Elegant Terns, such as at Bolsa Chica and perhaps San Diego, the poor reproductive success skimmers sometimes experience may reflect overcrowding, as the very cohesive behavior of the terns interferes with skimmers' nest attendance (C. Collins pers. comm.). Large roosting aggregations of pelicans and cormorants have occasionally contributed to failures of Black Skimmer colonies at the Salton Sea (AB 46:1178, Molina 2004), and American White Pelicans (*Pelecanus erythrorhynchos*) were believed to have interrupted skimmer nest attempts on North Island at Bolsa Chica in 2005 (P. Knapp pers. comm.).

The recent apparent collapse of the marine sportfishery and the crash and only partial recovery of tilapia at the Salton Sea (J. Crayon pers. comm.) further threaten the continued existence of skimmers there. The effects on existing skimmer nesting and foraging habitats from proposed restoration projects at Bolsa Chica, south San Diego Bay, and the Salton Sea are unclear at this time, but should be considered as potential threats to the nesting populations at these sites.

The proximity of urban development and the

associated increase in disturbance by humans, pets, and feral animals can disrupt the nesting attempts of entire colonies; such disturbances are especially pronounced in south San Diego Bay (R. Patton pers. comm.). At the Salton Sea, disturbances by humans and predators that cause repeated upflights of birds, even for brief periods, can potentially subject eggs and young chicks to lethal high temperatures (Molina 1999). Such disturbances at both coastal and interior sites also increase opportunities for predation by gulls and other opportunistic avian predators, which may have significant impacts on annual nesting success (Molina 2000). Skimmers nesting in San Francisco Bay in close proximity to large colonies of California Gulls (*Larus californicus*), which are increasing in response to the availability of food in landfills, are limited in part by gull predation (C. Strong pers. comm.), though this is likely to have only a minimal effect statewide given the few skimmers involved.

Mortality of chicks and eggs directly or indirectly from inclement weather, high temperatures, adherence of eggs to muddy substrates, and inundation from high tides or wave action (Grant 1982; Molina 1996, 1999; Peresbarbosa-Rojas and Mellink 2001; Gochfeld and Burger 1994) are potential threats if exacerbated by human activities that cause disturbance or otherwise compromise habitat suitability.

Few analyses of organochlorine or heavy metal contamination in Black Skimmers have been performed at either coastal or interior sites in California. While no adverse impacts to reproduction have been demonstrated directly, organochlorine and selenium levels observed in a limited sample of skimmer eggs from the Salton Sea warrant further consideration (Molina unpubl. data, C. Roberts pers. comm.). Population declines in Texas in the 1980s were not believed to be related to such contamination, as levels of mercury, selenium, and PCBs in this population were below those known to be toxic to embryos (Gochfeld and Burger 1994).

Skimmers do come in contact with oil deposited on beaches, as birds with oiled plumage are often observed on Santa Barbara and other southern California beaches in winter. Such contamination is usually limited to the feet and a few feathers on the birds' ventral surface. The effects of ingestion of oil during preening are poorly understood. Catastrophic oil spills that impact large sections of shoreline habitat could adversely affect important loafing and foraging areas.

## MANAGEMENT AND RESEARCH RECOMMENDATIONS

- Protect and maintain the extent and integrity of all existing nesting habitats; ensure such protection in the restoration plans for the Salton Sea, south San Diego Bay, and Bolsa Chica.
- Modify existing nesting habitat by augmenting problematic substrates with sand, shell, or fine gravel, and enhance the isolation of sites from terrestrial predators and human intruders.
- Establish additional colony sites, particularly at the Salton Sea, but also at coastal sites, such as Bolsa Chica and south San Diego Bay, where crowding and interference by densely aggregated terns or large flocks of resting waterbirds appear to be reducing nesting success.
- Protect productive foraging areas that may be especially vulnerable to contamination, such as protected inlets, bays, and lagoons.
- Conduct studies of diet, foraging, provisioning behavior, and nest attendance to elucidate factors that influence the low apparent reproductive success in some years at coastal and interior colonies.
- Building on limited prior work (Taylor 1997), conduct demographic studies to determine fledging success, juvenile survival, adult longevity, recruitment, and the degree of metapopulation mixing among breeders at sites within the southern California–Baja California region.

## MONITORING NEEDS

Population size should be monitored annually, or at least every other year, using a protocol that standardizes count methods across colonies. Standardized indices of reproductive success should also be developed, since some colony sites, particularly on the coast (e.g., Bolsa Chica and San Diego Bay) but also in the interior in recent years, attract large numbers of breeding pairs but demonstrate poor productivity, which cannot be explained by predation alone.

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