

Brown Pelican *Pelecanus occidentalis*

The failure of Brown Pelican nesting in southern California in the late 1960s and early 1970s, and its link to DDT, was a key case alerting the world to the unintended ill effects of persistent pesticides. Happily, once the release of DDT in the United States was banned, the pelicans recovered quickly. By the 1990s Brown Pelican was again common along San Diego County's coast, numbers peaking in late summer and early fall. Nevertheless, the population remains fragile, and in California the Brown Pelican is still formally listed as an endangered species. The nesting colony nearest San Diego County is on Los Coronados Islands off Tijuana.

Winter: The Brown Pelican is common all along San Diego County's coast, as well as over the nearby ocean. The largest numbers are where secure roost sites, on coastal bluffs or man-made structures, lie near good fishing, as at Torrey Pines State Reserve (N7; up to 218 on 26 December 1999, B. C. Moore), La Jolla (P7; 150 on 26 December 1998, L. and M. Polinsky), Point Loma (S7; 156 on 18 December 1999, J. C. Worley), and North Island (S8; 302 on 18 December 1999, R. T. Patton). In San



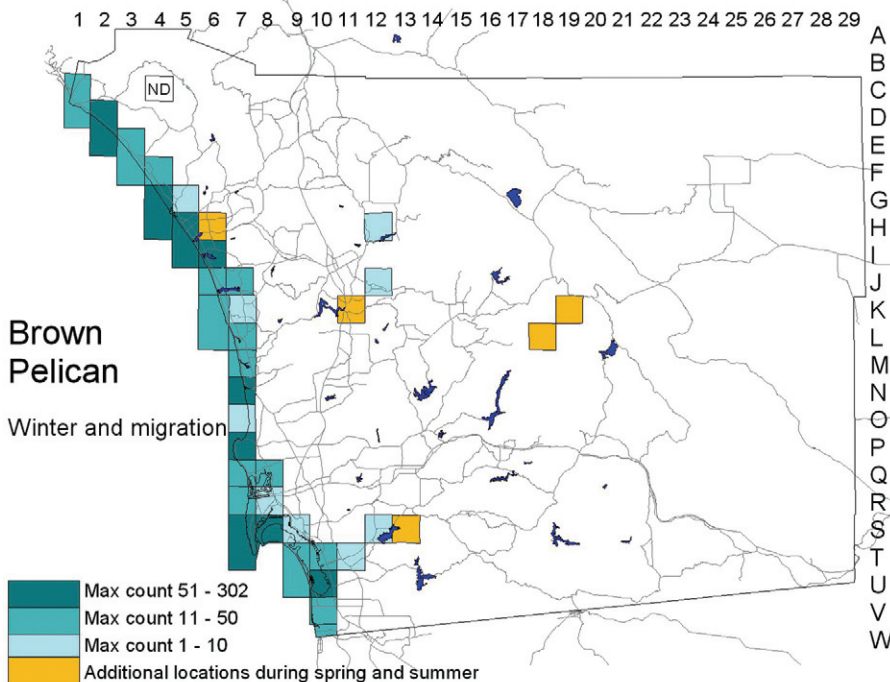
Photo by Anthony Mercieca

Diego Bay the pelican is more numerous north and west of the bridge than to the south of it, though many roost on the dikes of the salt works at the south end.

Brown Pelicans enter all lagoons open to the tide but, except at one site, are only casual on fresh water.

The exception is Sweetwater Reservoir (S12/S13), where the species has become regular in summer and fall, with up to 45 on 18 September 1996. Most records here fall between 21 May (1996) and 9 December (1998), but five are scattered through the winter and early spring, including single birds 28 February 1997 and 13 February 1998 (P. Famolaro). Other inland winter records are of one in San Pasqual Valley (J12) 30 December 2000 (K. L. Weaver) and one at Lake Wohlford (H12) 16 February 2002 (J. Ciarletta).

Migration: The low point of the Brown Pelican's year in San Diego County is from March to May, when the breeding birds are clustered at their colonies on offshore islands. Nevertheless,



nonbreeders are still common in spring at the species' favored spots. Weekly surveys of north San Diego Bay in this 3-month interval returned an average of 46 (Mock et al. 1994). Numbers increase sharply through the summer as the birds return from their nesting colonies and migrate northward from Baja California. They peak from August to October (Mock et al. 1994, Stadtlander and Konecny 1994, Manning 1995), then decrease through the late fall and winter. Mock et al. (1994) found that adults have a bimodal peak, the first in July, the second in October and November. Subadults peak in August and September, juveniles in September. Migration is earlier if nesting fails, as when the fish supply is reduced by El Niño.

Peter Famolaro found Brown Pelicans unexpectedly regular on Sweetwater Reservoir, recording them in four of five years of the atlas period. They arrived as early as 6 May in 1998 (two birds) and peaked at 17 on 10 August 1998. Elsewhere inland the Brown Pelican is rare but, besides the two winter records cited above, there are at least 19 from 14 April (2001, one at the east end of Lake Hodges, K11, E. C. Hall) and 5 May (2001, one possibly injured immature at Camp Marston, K19, S. E. Smith) to 23 September (1976, one over the Borrego Valley, ABDSP database). Many of these birds likely came in from the southeast, from the Gulf of California, as the species now migrates regularly from the gulf to the Salton Sea. Such an origin is especially clear in the case of a flock of 22 flying north over June Wash, Anza-Borrego Desert (M27), 15 May 1982 (ABDSP database).

Breeding distribution: On 17 and 18 May 1998, one bird carried a stick and a pair copulated on the cliffs at La Jolla (C. Oliver photos). But there is no further evidence of

nesting in San Diego County. Perhaps it was behavior like this that prompted Sams and Stott (1959) to write "breeds ... sometimes on secluded mainland cliffs (La Jolla)." The colony on Middle Island of Los Coronados had 285 active nests in 1988 (Everett and Anderson 1991).

Conservation: As a result of the contamination of the ocean off southern California with DDT, the regional population of the Brown Pelican declined until the mid 1970s (Anderson and Anderson 1976). After use of this pesticide in the United States was banned the population began to recover. In San Diego County, the increase was especially noticeable in the late 1980s. Since then the number of pairs nesting on the Channel Islands has been more or less stable at 4000–6000, with dips in years of El Niño (Shields 2002). From 1968 to 1974 the San Diego Christmas bird count averaged 125 Brown Pelicans, but from 1995 to 2002 it averaged 708.

In spite of the recent positive trend, the Brown Pelican still faces threats. Injuries from fish hooks and fishing line are common, and in San Diego County pelicans have even been found mutilated, their bills half sawed off. Because of the birds' sensitivity when nesting, colonies must be kept safe from human disturbance and release of predators. Even fishing boats approaching the nesting colonies on Los Coronados Islands reduced the birds' nest success (Anderson 1988). If climate change leads to an increased frequency of El Niño, the Brown Pelican as well as many other water birds may find the food supply insufficient to sustain them.

Taxonomy: The California Brown Pelican, *P. o. californicus* Ridgway, 1884, is the subspecies found on the west coast of North America.