

GUIDE TO THE SALTON SEA RESTORATION PROJECT ALTERNATIVES

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AUTHORITY**

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OF THE INTERIOR
BUREAU OF
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California's Dwindling Wetlands

1780:
5 Million
Acres



1999:
450,000
Acres

California's once abundant wetlands have been depleted severely over the past 200 years, and we are continuing to lose this precious resource into the 21st century.

THE SALTON SEA: AN IMPORTANT RESOURCE

Although the current Salton Sea was formed by an accidental release of water from the Colorado River nearly a century ago, the Salton Basin has long been an ecologically and culturally important area. Historically, the periodic shifting of the lower Colorado River caused Lake Cahuilla to repeatedly form and later recede in the area that the Salton Sea now occupies. Scientists estimate that, on average and over the past 2,000 years, the Colorado River flowed into the Salton Basin more often than it followed its current course. Lake Cahuilla was an important resource for birds and other wildlife, as well as for the native people of the region. But before California was settled, wildlife were better able to cope with the comings and goings of Lake Cahuilla because of other wetlands in the state that no longer exist.



Waterbirds of the Salton Sea include (clockwise from upper right) great blue heron, black-necked stilt, snowy egret, and American avocet.

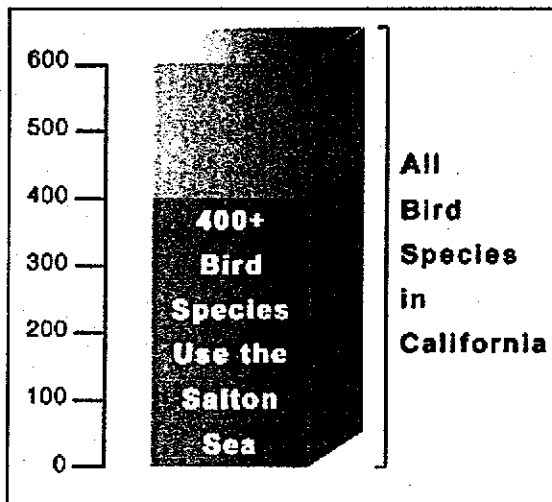


An Important Habitat for Migratory Birds

Migratory birds follow complex pathways that must be supported by the availability of appropriate habitat and adequate food. The Pacific Flyway is a migratory pathway for millions of birds traveling between the breeding grounds in Canada, Alaska, the Pacific Northwest, and the Northern Great Plains and wintering grounds along the Gulf of California, extending into Central and South America. The Salton Sea provides an important food source for fish-eating birds along that flyway.

At the time that the Salton Sea was formed, from 1905 to 1907, a substantial amount of wetland acreage within California was available for the millions of migrating birds that annually pass through the state. California now leads the nation in the percentage of historic wetland acreage lost. Scientists estimate that more than 95 percent of that acreage has been destroyed or adversely modified. Currently, less than 0.4 percent of the surface area of California is wetlands, compared to the nearly 5 percent at the time of settlement. Wetland losses have been a major factor in the population declines for some bird species; as a result, the Salton Sea has become a habitat of increasing importance.

The Salton Sea's importance extends beyond the Pacific Flyway. Records of the US Geological Survey's Bird Banding Laboratory disclose that birds banded at the Salton Sea have been reported from Russia and the North American Arctic to Latin America and from Hawaii to the Maritime Provinces of Eastern Canada. The considerable interchange evident with birds of the Pacific and



Of the 600 different bird species in the state, two-thirds of them spend at least part of the year at the Salton Sea.

Central flyways indicates that the importance of the Sea is far greater than transient local and regional bird use.

The Salton Sea ecosystem supports some of the highest bird biological diversity in North America; more than 400 species have been reported within this ecosystem. To place this in perspective, the number of bird species within the ecosystem is approximately 70 percent of all the bird species recorded in California. In addition, approximately 100 species, or one-third of all species that are

A Timeline of the Salton Sea

Circa 12,000 years ago: Native Americans first occupy the Salton Basin.

1,300 years ago: Lake Cahuilla arises in the Salton Sink whenever the Colorado River's egress to the Gulf of California silts up. Riverine tribes, along present day eastern Imperial County border, practice farming.

Circa 1500: A large inflow of water from the gulf fills the lake to a body of water 26 times the size of the current Sea.

1540: Colorado River delta first explored by Spanish.

1604: Don Juan de Ornate, Spanish Governor of New Mexico, explores the river that he names the "Colorado."

1700-1750: Last large infilling of Lake Cahuilla occurs.

1774: Spanish make first contact with the Cahuilla people, ancestors of present day Torres Martinez Desert Cahuilla Indians.

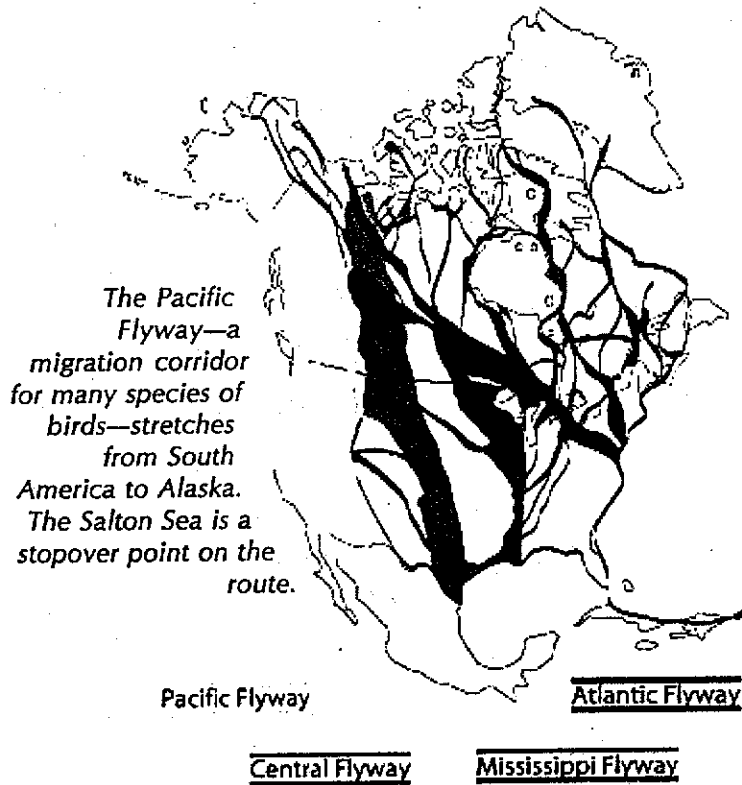
1840: Colorado River flooding to the Salton Sink recorded. New River possibly formed at this time.

1849: Forty-Niners begin crossing Imperial Valley on their way to California gold fields.

1853: Imperial Valley recognized as potential desert "garden spot," if it can be adequately irrigated.

1876: US Government establishes Torres Martinez Desert Cahuilla Indian Reservation, with a grant of 640 acres.

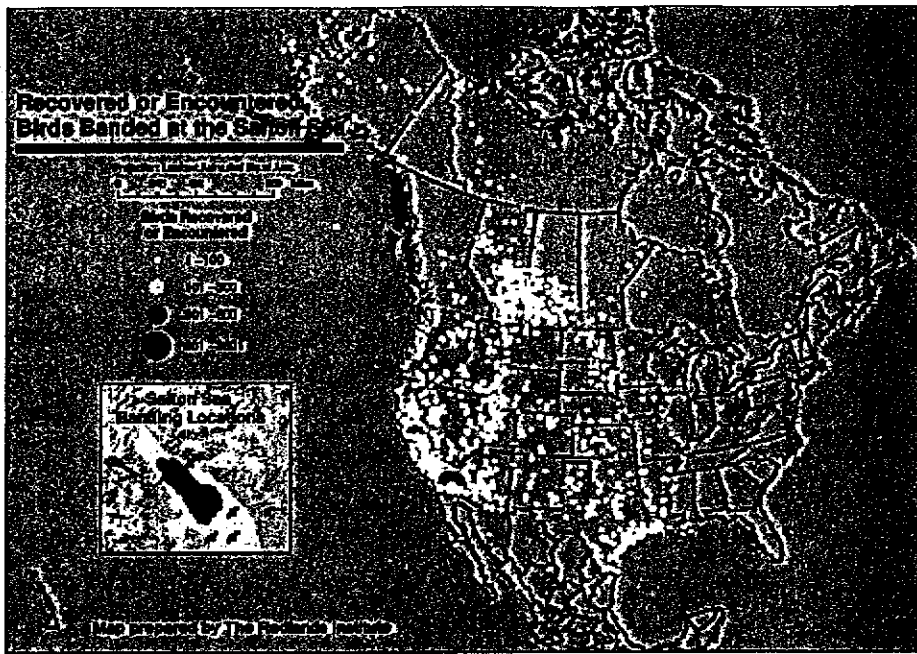
1891: Colorado River flooding to the Salton Sink recorded, forming 100,000-acre lake; 20,000 acres on the northern side of the Salton Sink are withdrawn from public use for the Torres Martinez Desert Cahuilla Indians.



known to breed in California, breed within the Salton Sea ecosystem. Among the birds using the Salton Sea are 19 species of water birds classified by the federal government, California, or both as species of high conservation concern because of their population status. The combination of the Sea's avian biodiversity and its importance as breeding habitat is unsurpassed by any limited geographic area within the contiguous 48 states and Latin America.

The following highlights reflect the variety of species and importance of the Sea as a bird habitat:

- During the summer at the Sea, up to 40 percent of all black skimmers in California and the larger of two breeding populations of the western subspecies of gull-billed tern breed there;
- Large numbers of California brown pelicans, American white pelicans, and a variety of other species, including substantial numbers of breeding black-necked stilt and American avocet, also use the Sea during summer;
- Winter use includes up to 30 percent of the entire North American breeding population of the white pelican and the primary wintering area in western North America for white-faced ibis;
- The Sea and surrounding agricultural lands support the largest wintering population of western snowy plover in the interior of the United States and an estimated 30 percent of the entire population of the mountain plover;
- The Sea is an important wintering area for the ruddy duck and one of the most important areas in the interior of western North America for wintering gulls;
- The Sea is one of only eight sites in the interior of western North America that holds over 10,000 shorebirds in fall and one of five such sites in the spring;



According to the US Geological Survey's Bird Banding Laboratory, the birds that stop over at the Salton Sea can be found throughout North America, as far south as Latin America and west to Russia. This shows that the Sea's importance extends throughout the hemisphere.

- In overall shorebird numbers, the Sea is the most important area in the intermountain and desert region of the West in spring and the second most important in fall, after Utah's Great Salt Lake;
- The Sea hosts one of the largest double-crested cormorant breeding populations in western North America and about 40 percent of the entire US breeding population of the Yuma clapper rail;
- The Sea is an important migratory stopover for eared grebe and black tern populations.

In summary, the Salton Sea ecosystem is a migratory bird habitat for all seasons that serves water birds and land birds alike. As a result, this ecosystem has become one of the crown jewels of avian biodiversity. If preserving the rich diversity of birds in this area is to be more than mere philosophy, then this ecosystem must be sustained in a way that preserves the current richness of species and provides for the numerous birds that use this area. Preserving this ecosystem must become a priority for the conservation community because it now serves as a critical link in the habitat chain needed to sustain migratory bird populations within western North America.

1901: Imperial Canal brings water from the Colorado River to the Imperial Valley.

1904: Silt blocks the Imperial Canal, preventing it from supplying water to the Imperial Valley.

1905: Temporary diversion of the Colorado River, constructed to replace water from the blocked canal, is breached by floodwaters. River changes course and flows into Salton Sink.

1906: Floodwaters continue to fill Salton Sea, threatening Imperial Valley's fledgling agriculture industry. Large concentrations of waterfowl, pelicans, and other birds reported in the Salton Sea area. Sea is at -195 feet below sea level.

1907: Southern Pacific Railroad closes the river breach. Sport fishing first promoted at Salton Sea.

1908: Breeding colonies of cormorants, white pelicans, and other birds found at the Sea.

1909: Thinking the Salton Sea would be gone by the 1920s, the US Government reserves in trust an additional 10,000 acres of land under the Sea for the benefit of the Torres Martinez Band.

1911: Imperial Irrigation District formed; discussions begin promoting a new canal to supply water to the valley.

Circa 1917-18: Netting mullet becomes profitable industry at Salton Sea during World War I.

1924: President Coolidge issues an executive order setting aside lands under the Salton Sea as a permanent drainage reservoir.

1928: Congress authorizes construction of Boulder Dam and the All American Canal, which will result in control of the Colorado and will eliminate flooding.

1930: Salton Sea Wildlife Refuge established.

1935: Salton Sea's level measured at -248 feet below sea level.

An Important Recreational Area



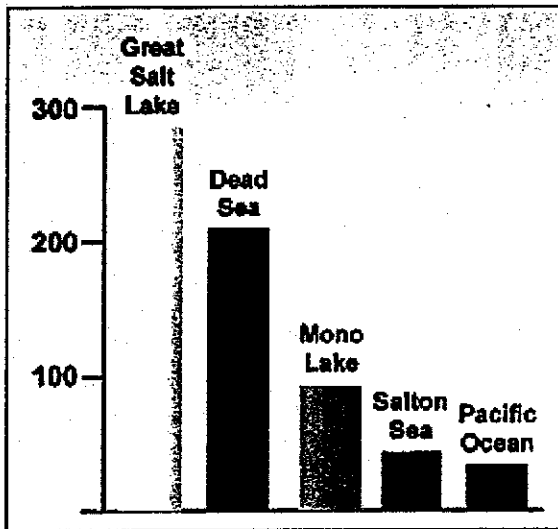
Once touted as a marine paradise, the Salton Sea offers visitors fishing, sunbathing, boating, swimming, and other outdoor activities.

The Salton Sea is an area of recreational importance for southern California, and history shows that with restoration it could be a much greater resource. By the late 1950s, the North Shore Beach area had been developed, and a yacht club—touted as a marine paradise, with one of the largest marinas in southern California—had been built and was attracting many Hollywood celebrities. On the other side of the Salton Sea, the development of Salton City also began in earnest during the 1950s. Included were a championship golf course and the Salton Bay Yacht Club. It was claimed that Salton City would become the most popular sea resort in all of southern California. The Salton Sea State Park (later renamed the Salton Sea State Recreation Area) was dedicated on February 12, 1955. It served as an important inland recreation area until the late 1970s, when visitor numbers declined markedly because of the deteriorating environmental quality of the Sea. This facility has 1,400 campsites, hundreds of day-use sites, and other amenities and hosts about 250,000 visitors each year.

Boat racing became a popular activity early in the history of the Salton Sea and persisted for many years. The Salton Sea 500 was a popular 500-mile boat race of the 1960s and was viewed by more than 5 million people when featured on CBS's "Sunday Sportstacular." The Salton Sea 300 replaced the boat races and is billed as the fastest, longest personal watercraft race in the world.

Sport fishing remains a popular activity at the Salton Sea, along with waterfowl hunting and bird watching. Sport fishing is the result of saltwater fish introduced from the Gulf of Mexico during the early 1950s and the introduction of tilapia, an exotic species from Africa, during the 1970s. Orange-mouth corvina is the most prized of the sport fish; corvina over 30 pounds are occasionally caught, and fish over 10 pounds are common. A report by the California Department of Fish and Game called the Salton Sea one of California's highest quality fisheries. The claim can still be made today, but it cannot be sustained unless the increasing salinity of the Salton Sea is arrested.

Bird watching and hunting have been popular activities since at least the 1920s and today provide substantial contributions to the economy of the local communities around the Salton Sea. The Salton Sea International Bird Festival, held annually since 1997, attests to the popularity of the Salton Sea ecosystem as a haven for bird watching. Hunting is supported by a substantial number of private duck clubs around the Sea, and waterfowl can be hunted on portions of the Sonny Bono Salton Sea National Wildlife Refuge and on the state's Imperial Wildlife Area Wister Unit.



In recent studies, the Sea's salinity was measured at 44,000 milligrams per liter. Unlike other saline lakes, the Sea supports a marine-like fishery.

A variety of other activities enhance the overall recreational value of the Salton Sea, including photography, camping, and kayaking. Because of its relative proximity to the large metropolitan areas of San Diego and Los Angeles, and with projected population growth within southern California, the large size of the Salton Sea makes it an even more valuable resource for the future. That value can only be realized through a Salton Sea that has acceptable water quality for people who are seeking water-related recreation.

1942: The All American Canal begins supplying water to the Imperial Valley.

1944-45: US Army B-29s, commanded by Lt. Col. Paul Tibbets, drop dummies of a new bomb into the Salton Sea. On August 6, 1945, Tibbets and his crew drop the first atomic bomb over Hiroshima, Japan.

1948: The Coachella branch of the canal begins carrying water to Coachella Valley.

1950: Orange-mouth corvina becomes the first saltwater game fish to be successfully established in the Salton Sea. Short-fin corvina and gulf croaker are also successfully transplanted.

1951: Sargo introduced to the Salton Sea.

1955: Salton Sea State Park dedicated, which at the time is the second largest state park in California.

1958: M. Penn Phillips Co. maps out Salton City.

1960: North Shore Beach and Yacht Club Estates opens on north side of Sea.

1961: The California Department of Fish and Game predicts the Salton Sea will die by 1980 or 1990 because of increasing salinity levels.

1974: A plan is discussed to reduce salinity levels with a diking system.

1976: Tropical storm Kathleen floods farmland and increases level of Sea.

1977: Tropical storm Doreen sweeps through Imperial Valley.

1980: Conservation efforts by the Imperial Irrigation District begin to stabilize the Sea's level somewhat.

1988: Salton Sea Task Force formed.

1992: 150,000 eared grebes die on Salton Sea, capturing national attention.

1993: Salton Sea Authority formed.