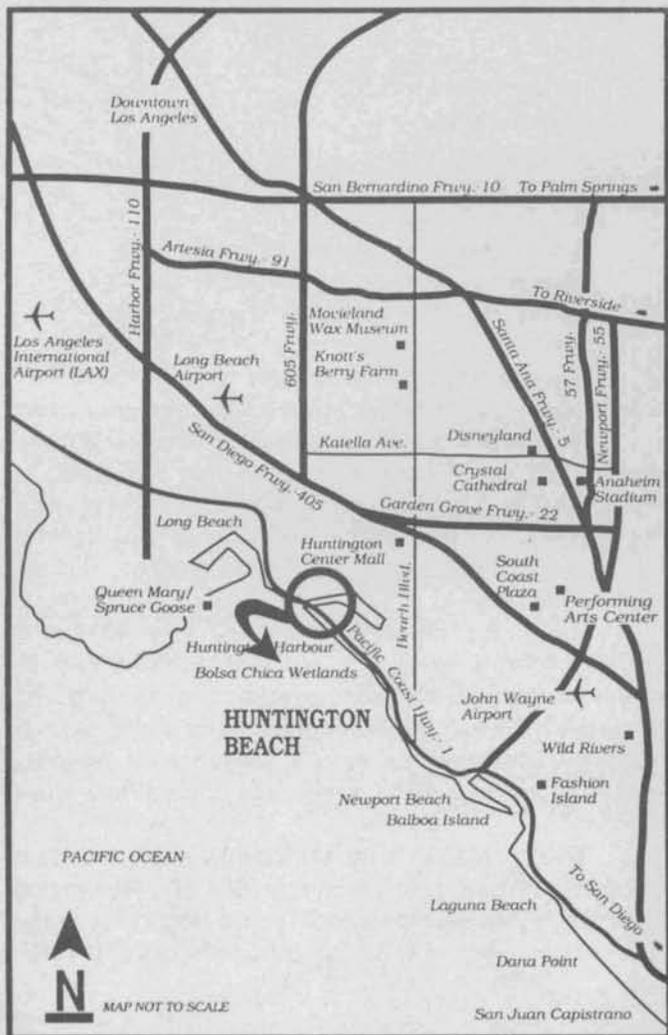




Huntington Beach

HB Conference & Visitors Bureau
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Bolsa Chica Ecological Reserve Trail Guide



Prepared by the Bolsa Chica Conservancy

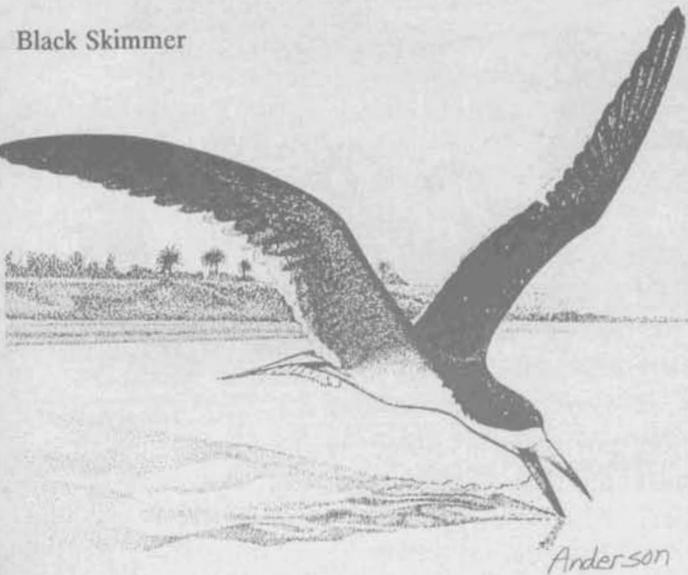


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10% of the world's population and is crucial to the survival of this species.

In winter months, look to the south for White and Brown Pelicans and Double-crested Cormorants.

Black Skimmer



6. Pickleweed and Belding's Savannah Sparrow

There are four permanent signs erected at this station by the Department of Fish and Game. These signs explain pickleweed, Belding's Savannah Sparrow, cordgrass, and California Least Terns.

Three species of Pickleweed (Salicornia) grow at the Bolsa Chica. This plant survives in salt water by concentrating the salt in the ends of its fleshy stems. These salt laden stems turn red in the fall.

Endangered Belding's Savannah Sparrows live, feed and nest exclusively in pickleweed. Of the 2,200 breeding pairs in California, 163 pairs live at the Bolsa Chica. In the spring, territorial males are usually seen singing from atop pickleweed stems.

7. Cordgrass and Clapper Rails

Cordgrass marshes like the one in front of you are among the most productive ecosystems in the world, producing as much oxygen, acre per acre, as a tropical rain forest. Most southern California coastal wetlands restoration programs are designed to encourage cordgrass growth. The stands here have grown from plantings by the California Department of Fish and Game.

The endangered Light-footed Clapper Rail nests exclusively in cordgrass marshes. In 1986, there were only 143 pairs of these rails left in California. The rails were absent from the Bolsa Chica for many years, but have been sighted with increasing frequency recently.

The poles that you see in the cordgrass to the south are holding down clapper rail nesting platforms. The platforms rise and fall with the tide, anchored in place by the poles. The birds nest in the tumbleweed that is tied to the platform. The platforms were installed in 1991 by the Bolsa Chica Conservancy to promote clapper rail breeding success.

8. Salt Marsh Interpretive Display

This permanent sign, erected by the California Department of Fish and Game, identifies many of the plants, fish and birds that live in Inner Bolsa Bay. How many of the species shown here have you seen today?

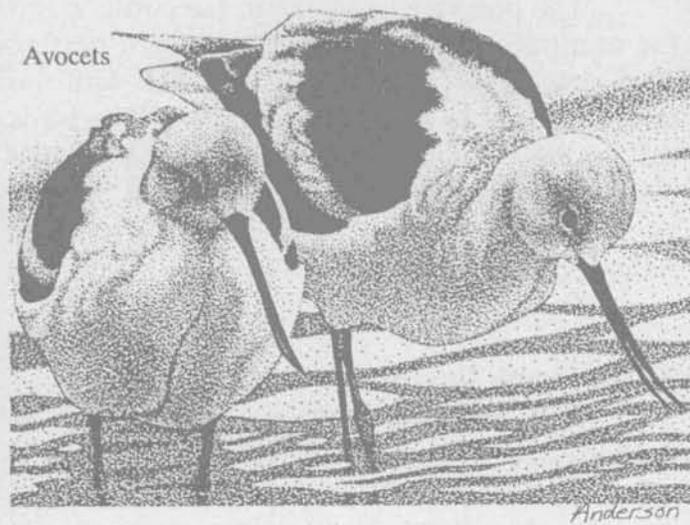
9. Oil Wells and Wetland Restoration

In November, 1920, the oil boom hit Huntington Beach as Bolsa Chica #1 blew in with a roar that was heard 15 miles away. School was let out so that the children could see the oil gush into the air (and presumably onto the wetlands!). By the 1940's, wooden oil derricks covered the mesa and much of the eastern portion of the marsh. Huntington Beach had become the second largest oil producer in

California and seventh in the nation.

Oil extraction continues today. A significant amount of wildlife lives in this back area, coexisting with the oil pumps.

Most of the surface area behind this fence is owned by the Signal Bolsa Corporation. An agreement between Signal and the Amigos de Bolsa Chica, a local citizen group that formed in 1973 to protect the wetlands, calls for restoration of additional acreage in this back area. The restoration will ultimately total 1,105 acres, making this the largest wetlands restoration project on the west coast.



Avocets

10. Shorebirds

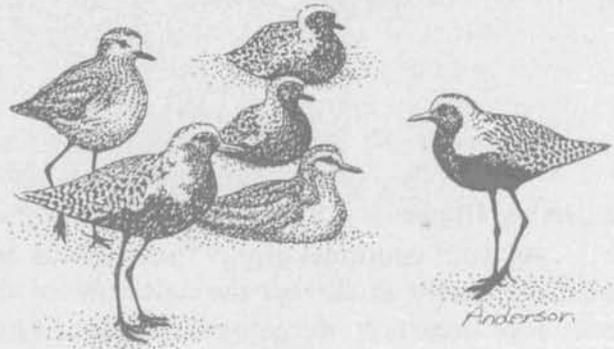
Avocets and Black-necked Stilts nest at the Bolsa Chica and can be seen year round. Marbled Godwits and Willets are other common large shorebirds.

Thousands of Western Sandpipers winter at the Bolsa Chica, flashing first brown, then white, as the flocks swirl in choreographed displays. Look for smaller Least Sandpipers among them. Dowitchers, medium sized shorebirds that probe the mud with a sewing machine-like rhythm, are also abundant.

Killdeer, Semi-palmated Plovers, Ruddy Turnstones and Black-bellied Plovers are usually present.

When large flocks of resting shorebirds or terns all take to the sky at once, look for one of our predatory birds such as the endangered Peregrine Falcon or the Northern Harrier.

Black-bellied Plovers

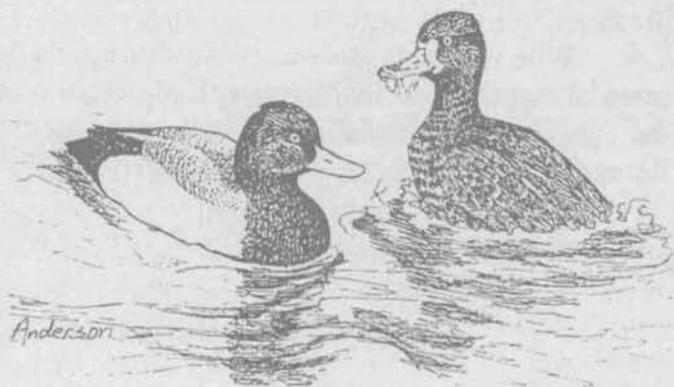


11. Freeman Creek

The body of water on the right side of the trail is Freeman Creek, a former fresh water stream. There is no longer fresh water flow and there is no inlet or outlet for the creek. The water that is here seeps in from the bay and is hypersaline due to evaporation. Brine shrimp and brine flies live here. This is a good place to watch stilts and other shorebirds.

12. Rabbit Island

Rabbit Island is on the right side of the trail on the other side of the creek bed. The island is a home for many animals, among them the rare Southern Marsh Harvest Mouse and California Legless Lizard. Look for rabbits and Northern Harriers (Marsh Hawks).



Lesser Scaup

13. Diving Ducks

As you continue along the trail to the bluffs, watch for ducks on the left side of the trail. Red-breasted Mergansers, Lesser Scaup, Ruddy Ducks and Bufflehead are abundant during winter months.

14. Wintersburg Channel

From this levee, you can see both flap gates and culverts. The flap gates on the dike are designed to prevent sea water from going upstream into the Wintersburg Flood Control channel. The rain water and urban runoff that comes down this channel is the fresh water source for the wetlands. The booms are designed to prevent trash from entering the bay and Huntington Harbor.

15. Interpretive Signs

At the top of the steps on the bluff are 3 permanent signs erected by the California Department of Fish and Game, showing some of the plants and animals that live in Outer Bolsa Bay. Do you notice a difference in the species that inhabit the Outer Bay in comparison to Inner Bay?

From this vantage point, you can see the San Gabriel mountains to the north and east, Long Beach Harbor to the north-northwest (look for the white dome over the Spruce Goose), the Palos Verdes peninsula to the northwest and Catalina Island to the west.

16. History

In the 1890's, a group of wealthy businessmen from Los Angeles and Pasadena formed the Bolsa Chica Gun Club and built a lodge on this mesa. After the Gun Club disbanded in 1964, the lodge was demolished.

In the 1800's, Bolsa Bay was not connected to Anaheim Bay, but emptied into the ocean through an opening near Warner Avenue. In 1899, the Gun Club diked off the estuary to increase the acreage of freshwater marsh. Tide gates prevented salt water from flowing into the bay and the wetlands fed by Freeman Creek converted to a freshwater marsh. The altered hydrology caused this ocean opening to silt closed. A new cut to the ocean was made between Bolsa Bay and Anaheim Bay. That channel can be seen today under the bridge at Warner Avenue.

The first coastal road through the area, Pacific Coast Highway, was built in 1926.

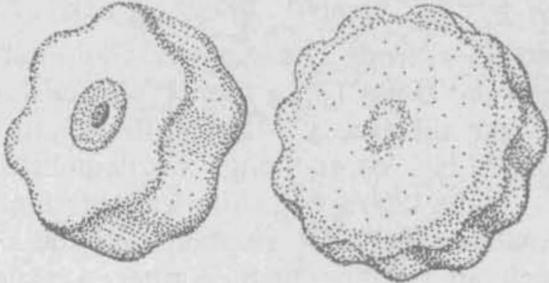
During World War II, the Bolsa Chica Mesa was converted to shore defense and became Bolsa Chica Fort Command. Two large guns aimed toward the ocean from rotating mounts. The concrete gun turrets and rails are still in place and can be seen just north of the interpretive sign.

17. Archaeology

Native Americans lived on the Bolsa Chica bluffs over 8,000 years ago. Cogstones were manufactured here for a brief time during the Milling Stone Period about 4,000 years ago.

Cogstones are round, flat, stone discs 3-5"

in diameter and 1" thick with notches of varying number around the edge. Some of these gear-like objects have holes in the middle. There are no wear patterns on the stones, leaving archaeologists puzzling over their purpose. A ceremonial or religious function is assumed.



Cogstones

18. Tide Gates and Wetland Restoration

The culverts in the levee allow water exchange between the Inner and Outer Bolsa Bays. The sea water here comes from the ocean through an opening in Seal Beach at the Naval Weapons station, through Anaheim Bay and Huntington Harbour and then under the bridge at Warner Avenue. There are two high and two low tides daily. Because the culverts restrict the flow of sea water, the Inner Bolsa never achieves the highs and lows that are seen in Outer Bolsa Bay. Outer Bolsa fluctuates about 8 feet while Inner Bolsa fluctuates only 2-3 feet.

The part of Inner Bolsa Bay that you just hiked along was cut off from salt water from the turn of the century to 1978. At that time, the California Department of Fish and Game recontoured the land, creating North and South Island, and installed these culverts to bring life-giving sea water back to the Inner Bolsa. The Department of Fish and Game also built this trail and the boardwalk. The return of wildlife since tidal flushing was restored has been remarkable.

This is an excellent location from which to observe terns, pelicans and an occasional Osprey.

19. Mudflats

The Bolsa Chica, like all southern California estuaries, has a detritus-based ecosystem. This means that decaying plants and microbes on the mudflats are at the bottom of the food chain. These are fed upon by small shrimp-like animals called amphipods and copepods and by snails and polychaete worms. These in turn are preyed upon by larger organisms, such as the tens of thousands of shorebirds that gather here daily in winter at low tide.

20. Sand dune plants

Between the highway and the nature trail lies a remnant of a formerly extensive sand dune system. Lilac colored Sea Rocket blooms year round. Low growing yellow Beach Primrose and showy lavender Sand Verbena bloom in the late winter and spring. Back curled, white florescences of Heliotrope bloom all summer. The 2-3 ft tall Telegraph Weed blooms bright yellow throughout the summer, forming dense, colorful stands by autumn.

Iceplant is an invasive non-native that provides poor habitat for local animals. The Bolsa Chica Conservancy is working with the Santa Ana High School Science Club on a dune wildflower restoration project, replacing iceplant with native dune plants.

21. Spiny Rush and Bulrush

The shoreline here is lined with two kinds of rushes that were important to the Native Americans. The 4-6 ft tall plants with sharp, round stems are Spiny Rush (*Juncus acutus*). The Native Americans used this plant to weave baskets. The shorter plants are Bulrushes or tules (*Scirpus* sp.). These members of the sedge family were used by the Indians to construct canoes, rafts, mats, clothing and duck decoys.

Bolsa Chica Conservancy

As you finish your tour of the wetlands, think about the many valuable functions that our wetlands perform.

Salt marshes:

- are nurseries for fish;
- produce oxygen;
- purify the water;
- provide homes for endangered species;
- are a crucial link in the Pacific Flyway;
- provide natural flood control;
- are recreation areas;
- are outdoor laboratories for scientists.

You can help by learning more about our wetlands and by supporting groups that protect and restore wetlands.

The Amigos de Bolsa Chica offer free guided tours of the Bolsa Chica Ecological Reserve from 9:00 to 10:30 AM on the first Saturday of the month from September through April. Private guided tours for groups can be arranged for a modest fee by calling the Amigos office at (714) 897-7003.

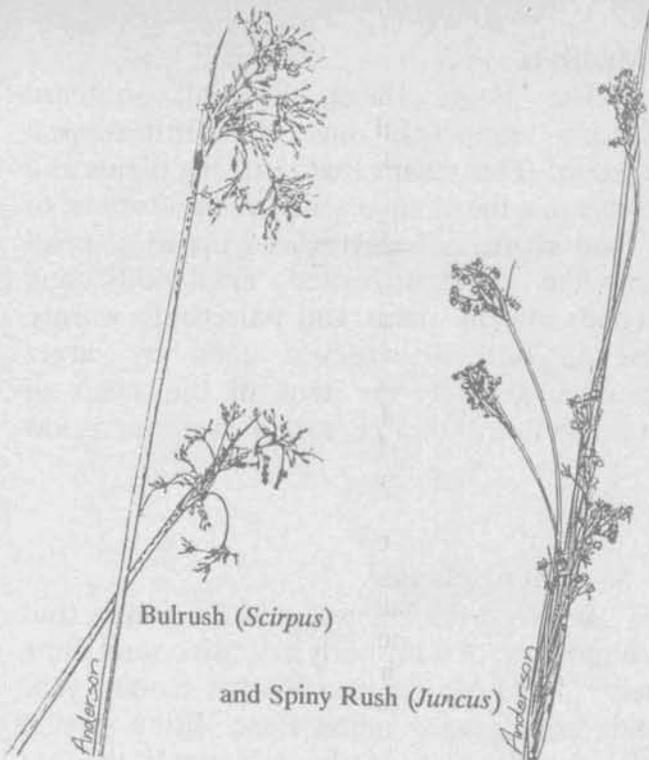
The Bolsa Chica Conservancy is a non-profit organization whose purpose is research and education in wetland science and wetlands restoration, particularly the Bolsa Chica wetlands. We monitor the water and wildlife of the Bolsa Chica, work on habitat enhancement projects, provide trail and sign maintenance, and remove trash from the wetlands.

You can help us in our efforts by sending donations to the Bolsa Chica Conservancy, P.O. Box 677, Huntington Beach, CA, 92648. All donations are tax deductible to the full extent of the law. For more information, call (714) 960-0262.

Other Places to See Birds

Huntington Beach has some of the best birding areas in Southern California. On one day in February, local birding teams sighted 144 species, all from within the city limits of Huntington Beach! In addition to the Bolsa Chica Ecological Reserve, local "hot spots" include the Huntington Beach Wetlands at Brookhurst and Pacific Coast Highway, Huntington Beach Central Park at Goldenwest and Talbert, Carr Park at Springdale and Heil, Seal Beach National Wildlife Refuge, Sunset Park, and flood control channels.

This guide was prepared by the Bolsa Chica Conservancy with a grant from the Huntington Beach Conference and Visitors Bureau. Text was written by Louann Murray, Ph.D., Bolsa Chica Conservancy Research Director. Graphics, layout, bird and plant drawings are by Thomas Anderson. Sea hare, lizard and squirrel drawings are by Jose M. Garcia.



Bulrush (*Scirpus*)

and Spiny Rush (*Juncus*)

22. Lizards and mammals

Look for Side-blotched Lizards (*Uta stansburiana*) scurrying off the path into the underbrush. The large holes in the sand are made by California Beechey's Ground Squirrels (*Citellus beecheyi*). Their burrows can extend for 200 ft.

Side-blotched Lizard



Beechey's Ground Squirrel

