

U.S. Fish & Wildlife Service

# **Sonny Bono Salton Sea** *National Wildlife Refuge* *Complex*





**Sonny Bono Salton Sea National Wildlife Refuge has shrunk—**

The refuge was established in 1930 by President Herbert Hoover's Presidential Proclamation. It is located along the course of the Pacific Flyway in the Imperial Valley of California. Originally the refuge consisted of approximately 37,600 acres. Now, because of flooding by the Salton Sea, only about 2,200 manageable acres remain. Dikes are expected to keep the sea from further encroachment on the refuge.

**Black skimmers**

*(below)*



**From gulf to ancient sea to desert—**

At one time the Gulf of California extended into what is now known as the Imperial and Coachella valleys. A natural dam was then formed through silt deposits off the gulf and resulted in the formation of an ancient sea, known as Lake Cahuilla. Through time, the sea evaporated and formed a dry alkaline basin. In the early 1900's only dry desert shrubs were present where the refuge and lake shore is today.

**White pelicans**

*(left)  
basking in the  
setting sun*



### **Yellow footed gull (left)**

*The Salton Sea is the only area in the U.S. to see the yellow footed gull*



### **A Sea was recreated in 1905 by a break in an irrigation canal—**

In 1901, Colorado River waters were diverted from Yuma, Arizona, into Mexico and back into the Salton Sea basin for agricultural development. In 1905, failure of a diversion structure caused the Colorado to flow unchecked into the Imperial Valley between 1905 and 1907, thus creating the present Salton Sea. Agricultural drainage and runoff from the surrounding mountains now supply the Salton Sea. There is no outlet from the sea, and water is removed only by evaporation.

### **Over 200 feet below sea level—**

The Salton Sea covers over 380 square miles. Its width varies from 9 to 15 miles, it is 35 miles long with about 115 miles of shoreline. The depth of the Salton Sea varies with the gentle valley slope to a maximum of about 51 feet. The surface elevation is currently about 227 feet below sea level.

### **Caspian terns (below)**



**Canada geese**  
*foraging for alfalfa and wheat in a refuge field*



**Waterfowl have adapted to changing habits and foods in Imperial and Mexicali Valleys—**  
Before the Salton Sea was formed, waterfowl were only found along the marshes and delta of the Colorado

River (primarily in Mexico). During the 1920's, as more water was diverted from the Colorado River for agriculture, marshes were inadvertently created. These marshes, at the

edges of the then smaller Salton Sea, resulted from agricultural water runoff. Waterfowl were attracted to the marshes from their former winter home in the drying Colorado River Delta. As farming intensified in the 1940's and the Salton Sea expanded, marshland once again shrunk and waterfowl turned to farmers' crops for food. Today, crops are grown on the refuge to feed wintering waterfowl and to keep the birds from eating farmers' crops.

**Northern pintails**



**Increasing salt stresses fish transplants—**

As the salinity of the Salton Sea began to rise as the result of evaporation, many of the native freshwater fish species began to

die out. In the 1950's the salinity of the Salton Sea was nearly that of the Pacific Ocean (35,000 parts per million). Attempts were made to introduce several marine fish. These attempts resulted in the

establishment of the Orange-mouth Corvina, Sargo, and Gulf croaker (*Bairdiella*), all transplanted from the Gulf of California. Later tilapia, an African species, were introduced into canals surrounding the Salton Sea. Unfortunately, only tilapia remain due to the increasing salinity and excessive nutrients in the sea. The current salinity level is in excess of 50,000 parts per million, more than 40 percent saltier than the Pacific Ocean.

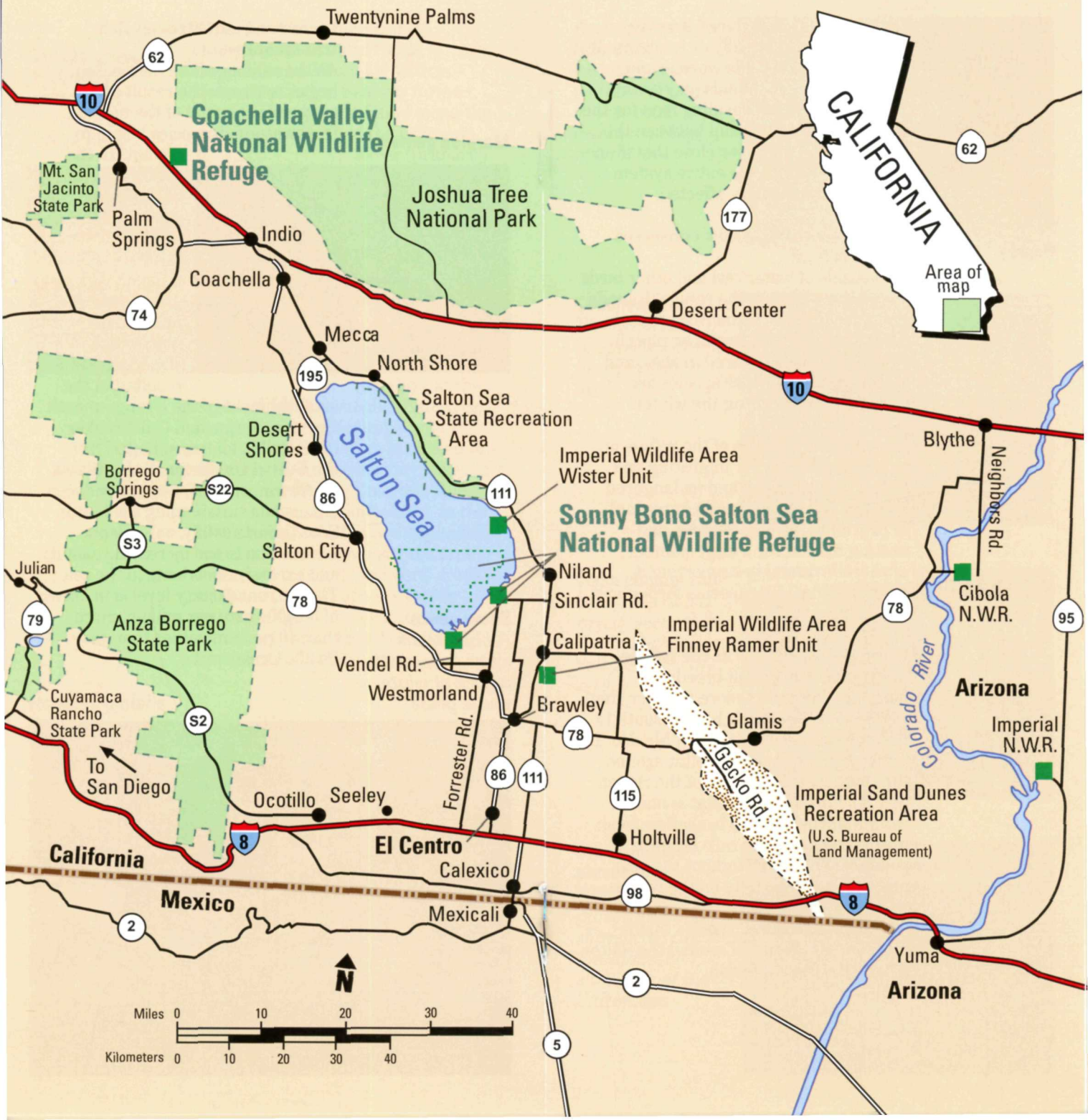
**Marbled godwits**



**Snow geese**

*A blue-phase snow goose with a flock of white-phase geese*





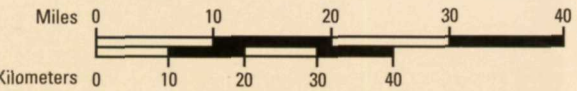
**Coachella Valley National Wildlife Refuge**

Joshua Tree National Park

**Sonny Bono Salton Sea National Wildlife Refuge**

CALIFORNIA

Area of map





Osprey

Other animals introduced into the Salton Sea, accidentally or intentionally, include barnacles, pile worms, and copepods. These animals play a very important part in providing food for the fishery. The relationship between the fish and their food is so close that if one were to disappear the entire system would be significantly affected.

#### Numerous wildlife now conserved on the refuge—

Thousands of waterfowl and other birds spend the winter at the refuge. Canada geese, snow geese, American avocets, black-necked stilts, northern pintail, green-winged teal, eared grebes, and a wide variety of other species are commonly seen during the winter.

The primary purpose of the refuge is to provide habitat for migrating and wintering waterfowl and endangered species. The refuge is also important in providing feeding, resting, and nesting habitat for a large number of shorebirds and in supporting a diversity of wildlife species throughout the year.

#### Endangered species at the refuge—

The Yuma clapper rail breeds in marshes along the Colorado River from the Nevada/California border south to the Colorado Delta region of Mexico. It is also found in marsh habitat around the southeastern portion of the Salton Sea. The preferred habitat is mature cattail-bulrush stands in shallow fresh water. Yuma clapper rails occur in suitable habitat throughout the year and breed successfully on the refuge.

Another endangered species that is occasionally observed around the Salton Sea is the desert pupfish.

#### American avocet

*Shorebird numbers such as those of the avocet peak during spring migration*



#### Coachwhip

*The arboreal coachwhip hunts for eggs and birds*



#### Yuma clapper rail

*Often heard but rarely seen, the Yuma clapper rail nests on the refuge*



#### Black-bellied plover

*Black-bellied plover and other shorebirds are found on the shoreline of the Salton Sea*



**Wood storks**

*Wood storks can be seen during the hot summer months*



**Roadrunner**



**Great blue heron**

*Great blue herons nest on the refuge in the spring*



**Black-necked stilt**

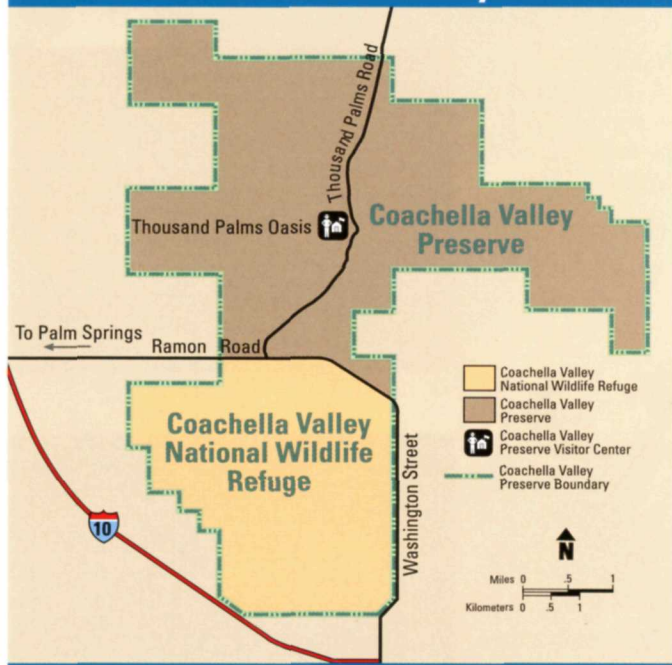


**Black-bellied whistling duck**





## Coachella Valley



Sonny Bono Salton Sea National Wildlife Refuge Complex includes the Coachella Valley National Wildlife Refuge. The 3,276 acres of refuge land is located ten miles east of Palm Springs in the rapidly developing Coachella Valley. The Coachella Valley National Wildlife Refuge is part of the larger Coachella Valley Preserve. This 20,114 acre preserve was established in 1985 to protect critical habitat for the survival of the federally threatened Coachella Valley fringe-toed lizard. Many other sensitive species have undergone dramatic population declines due to habitat loss in this fragile desert environment.

**Coachella Valley milk vetch**  
*is listed as endangered*



The preserve is managed cooperatively between the U.S. Fish and Wildlife Service, the Bureau of Land Management, the California Department of Parks and Recreation, the California Department of Fish and Game, and the Center for Natural Lands Management. The Thousand Palms Oasis Visitor Center is open daily during regular business hours, except in the summer when it is closed. The preserve is open daily from sunrise to sunset.

## Coachella Valley

**Thousand palms oasis**



**Colorado desert sidewinder**



**Coachella Valley spring bloom**



**Coachella Valley fringe-toed lizard**



### Refuge hours



The Sonny Bono Salton Sea NWR is headquarters for the complex. The visitor center has a wildlife exhibit, bookstore, and is open 7:00 am to 3:30 pm Monday through Friday. Call ahead or visit our website to find out if the visitor center is open on weekends. The refuge is open sunrise to sunset.

### Wildlife observation and photography



These activities are encouraged from observation platforms, self guided interpretive trails and exhibits. These are available near the visitor center and at Unit 1.

### Designated trails



Walking and hiking are enjoyed on designated trails. Walking trails on the Rock Hill Trail at the visitor center is about 2 miles and the Michael Hardenberger Trail at Unit 1 is 1/2 mile. Most refuge roads and all trails are closed to vehicles.

### Waterfowl hunting



During designated seasons (November-January) waterfowl hunting on the refuge is permitted on areas shown on map. These areas are managed by state and federal regulations.

### Fishing



Boat fishing only is permitted, except where posted as closed. From April 1 to September 30, areas of the Salton Sea within the refuge are open to boat fishing. These areas are closed to all entry at other times of the year. Bank fishing is not permitted at any time.

### Pets



Pets must be on a leash at all times. Hunting dogs on the public hunting areas must be under effective control.

### Camping



No camping is allowed on the refuge

### Signs



Some areas of the wildlife refuge are closed to the public to protect resting wildlife and endangered species. Please respect the designated areas that posted signs alert you to.

### For information, contact:

#### Sonny Bono Salton Sea National Wildlife Refuge

906 W. Sinclair Road  
Calipatria, CA 92233  
Phone 760/348 5278

<http://www.fws.gov/saltonsea>

Information on other nearby recreation land can be obtained from:

#### Salton Sea State Recreation Area

P.O. Box 3166  
North Shore, CA 92254  
Phone 760/393 3052

#### Coachella Valley Preserve

P.O. Box 188  
Thousand Palms, CA 92276  
Phone 760/343 2733

#### California Department of Fish and Game

8700 Davis Road  
Niland, CA 92257  
Phone 760/359 0577

### Brown pelicans *preening feathers near Obsidian Butte*



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Visit our website!  
<http://www.fws.gov/saltonsea>

U.S. Fish & Wildlife Service

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<http://www.fws.gov>

For Refuge information  
1 800/344 WILD

Visitors with disabilities may be reasonably  
accommodated upon request, and/or receive an  
alternative format publication.

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