

By the students of the Gary and Jerri-Ann Jacobs High Tech High  
 Supported by the Unified Port of San Diego



Endangered and Threatened Species

# San Diego Bay: 2008 Tide Calendar



**"San Diego Bay: A Call for Conservation"** is a story about the coexistence of humanity and wildlife that is creatively woven together with original research, novel science, historical investigations, interviews and colorful graphics. The focus is San Diego Bay and its surrounding regions which have the unique combination of rapid urbanization, high biodiversity, and large numbers of rare and unique species. However, the theme of finding a balance between economic growth and biological conservation is becoming universal.



This work was made possible thanks to numerous experts and users of the Bay who volunteered their time for interviews. The information and ideas provided by these collaborators helped produce this project for the San Diego Community and those who visit San Diego Bay.



# Introduction

Over the course of the last five years, High Tech High's innovative and sustained approach to environmental education and conservation – the "Integrated Urban Ecology Study of San Diego Bay" has introduced 300 high school students to original research in ecological assessment and engagement through writing and reflection regarding their urban ecology. From these studies and reflections, three books were published which focused on the issues that reflect the region's most pressing environmental priorities, including those that the students themselves have identified as most meaningful and pressing to their generation. The books were written, photographed and designed by students and have since informed, inspired and achieved importance with local residents, marine scientists, conservation advocates and policymakers alike. This calendar represents an introduction to the fourth book in the series "San Diego Bay: A Call for Conservation" which is being published by California Sea Grant.

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If only the rest of America were  
as interested, informed, and  
dedicated as your students,  
this country could readily solve its  
//  
environmental problems.

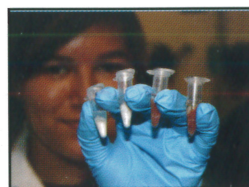


Map of San Diego Bay

Tidal corrections for California based on San Diego Tides  
San Diego +0:00, Los Angeles +0:10, Santa Barbara +0:32,  
Monterey +1:24, San Francisco +2:32, Humboldt Bay +2:27



High Tech High is located in the ongoing redevelopment of Liberty Station, the former Naval Training Center in San Diego, within 200 meters of San Diego Bay. The school's proximity to the Bay affords easy contact with several wetland and armored bay habitats. As the City's redevelopment efforts continue, the students' study of the complexity and fragility of urban-bay ecosystems contribute to the City's ongoing discussion and decisions. Using this unique setting as a field laboratory, student understanding of the interconnection between human activities (eg. fishing, boating and military exercises) and local marine life provides decision makers with invaluable perspectives, recommendations and original research.



Calendar edited and designed by Dana Norall and Conor Howard

For ordering and additional information contact: [jvavra@hightechhigh.org](mailto:jvavra@hightechhigh.org)

Disclaimer: Tidal predictions by NOAA National Weather Service.

We can't guarantee the tidal data or be held responsible for any untoward consequences arising from their use.



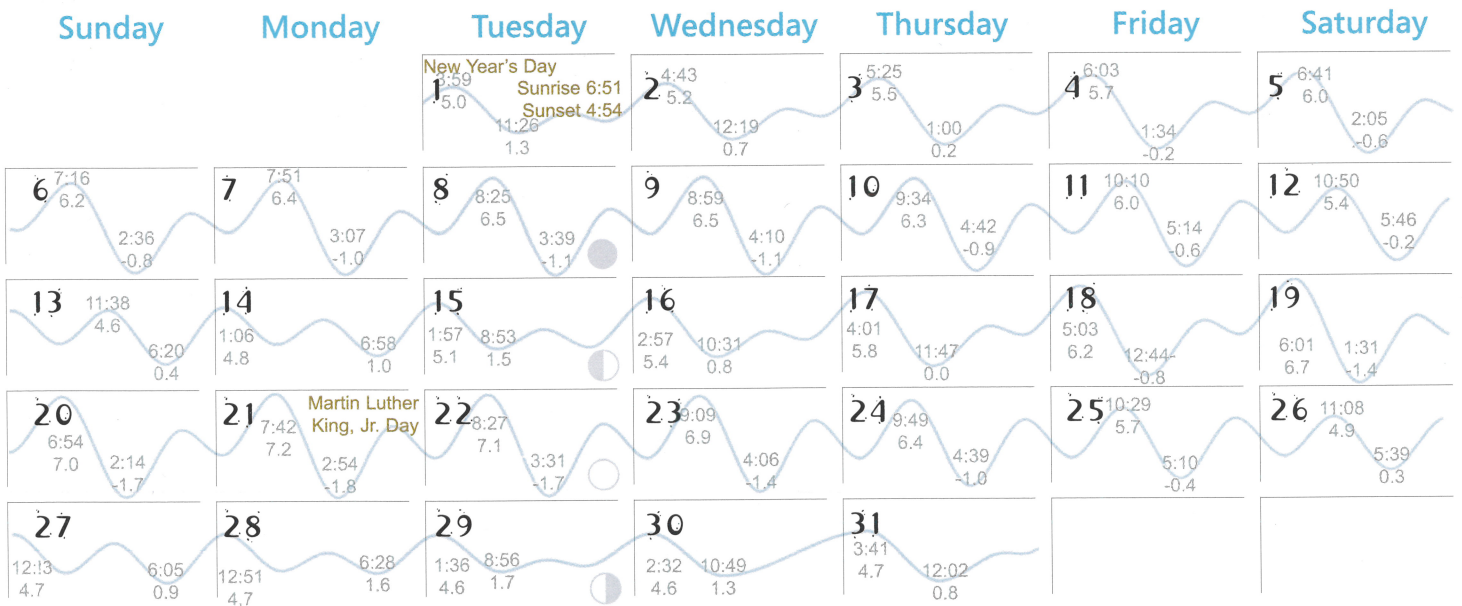


Long-billed Curlew

# January



The Long-billed Curlew (*Numenius americanus*) is the largest North American shorebird. The size of its population has fallen to less than 20,000 birds due to the loss of its habitat. On a national scale the United States has lost 51 percent of its wetlands, and California tops the state list with a 91 percent loss. The Curlew currently resides on the "watch list" for endangered birds.



**Restoration:** While people can no longer shoot Curlews, humans are still causing a significant impact on their population through the destruction of the bird's habitat. Restoration work in the San Diego Bay, such as the Famosa Slough and the South Bay, has focused on preserving the remaining wetlands to bolster the populations of many birds including the Curlew.

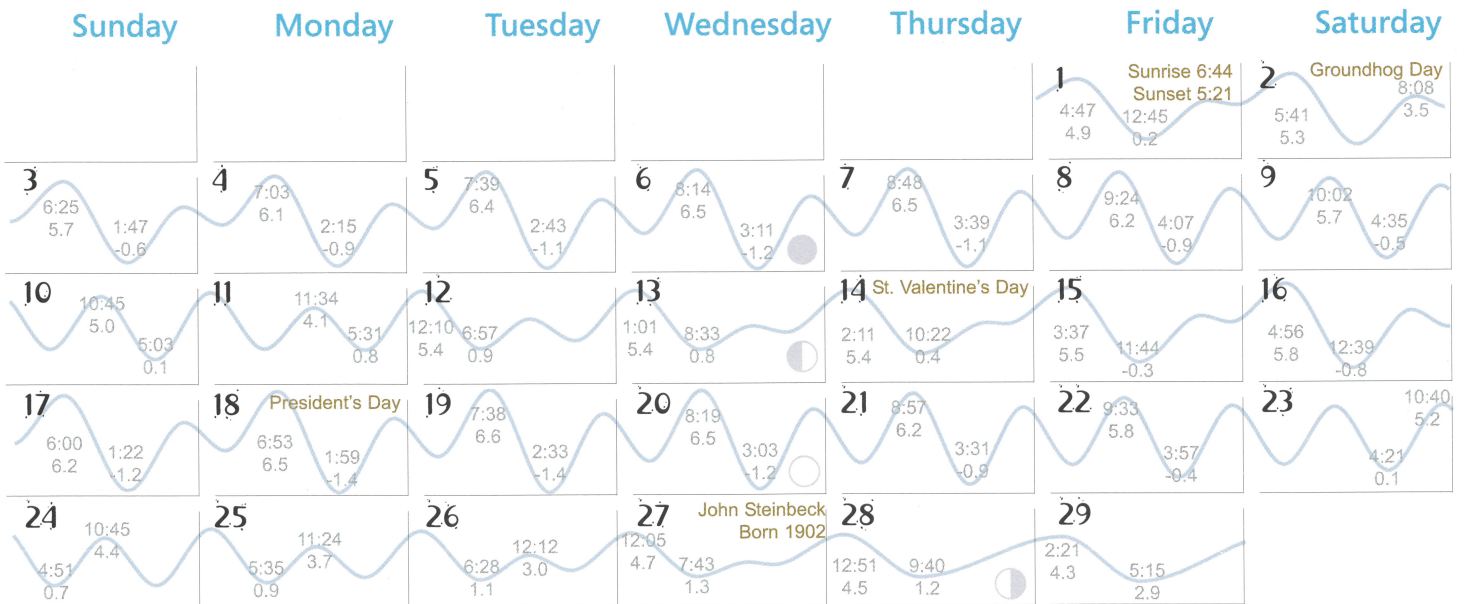


Osprey

# February



The Osprey (*Pandion haliaetus*) is known as the sea hawk or king of the sea because of its spectacular ability to catch fish twice its own body weight. However, its acrobatic maneuvers cannot save it from perils such as DDT, poachers, and habitat loss. These have been the leading causes for the Osprey's status as a species of special concern.



**Restoration:** Since the decline of the Osprey there have been numerous attempts to find a remedy. In 1997, San Diego had its first pair of Osprey nests since 1912. The increase in population in recent years is thought to be a sign showing the improvement in local water quality. Additionally, the Port of San Diego has been working with conservation groups to build Osprey nesting platforms.

[www.sdbayguide.com](http://www.sdbayguide.com)



# Green Sea Turtle

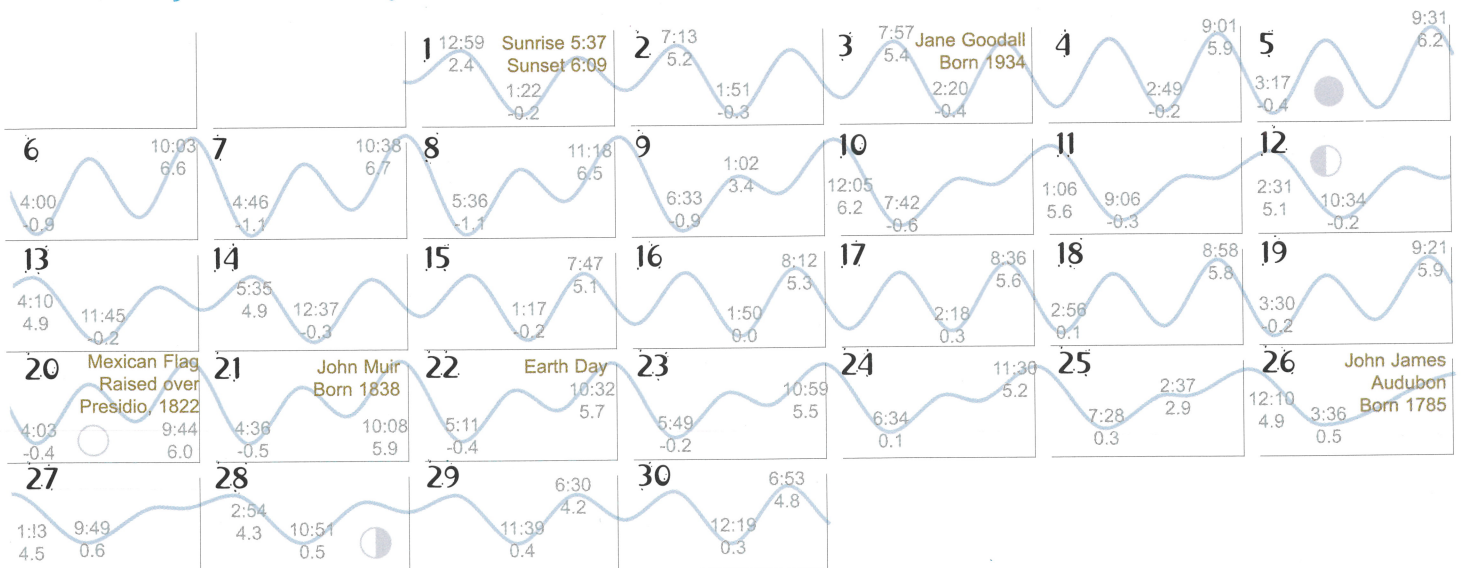


## April



The Green Sea Turtle (*Chelonia mydas*) is a prehistoric species that has roamed the seas for over 150 million years. On an individual level, one can help these animals by properly disposing of plastic bags and balloons. There are now only about 200,000 sea turtles left in the world and approximately 60 of these reside in San Diego Bay. The loss can be traced to coastal development, poaching, pollution, and the disease *Fibropapilloma*.

Sunday      Monday      Tuesday      Wednesday      Thursday      Friday      Saturday



**Restoration:** The federal protection law prohibits hunting or harassing the turtles and fines for violating this law can be upward of 100,000 dollars. On an individual level, one can help these animals by not releasing balloons or washing your car on your lawn or in a car wash. The turtles often fatally mistake deflated balloons for jellyfish, so even a simple act of tying down your balloons could save a sea turtle.

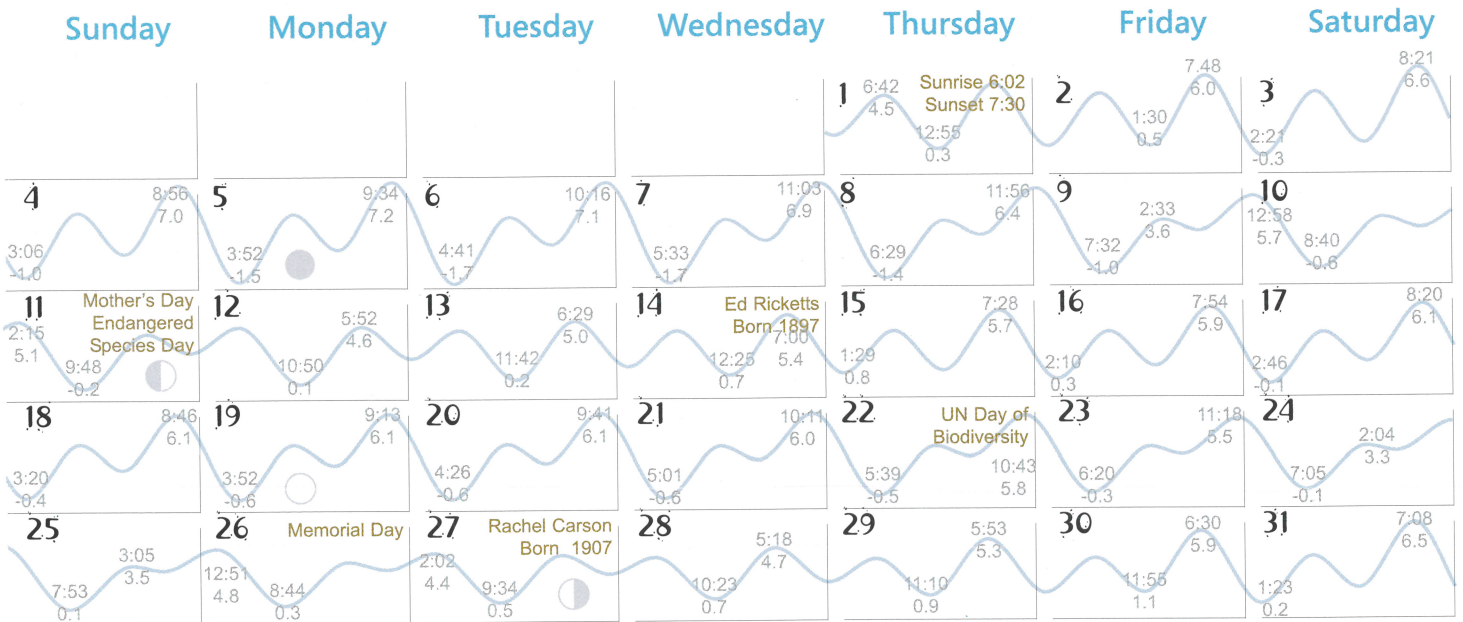


Light-footed Clapper Rail

May



The Light-footed Clapper Rail (*Rallus longirostris levipes*) is a small marsh bird that has become the icon of endangered species along the coast of San Diego County. The Clapper Rail is a secretive and very skittish bird, sometimes even abandoning its eggs if an intruder enters their nesting area. In 2006, there were only 400 breeding pairs of Light-footed Clapper Rails in existence, due to loss of coastal wetland habitat and the bird's slow breeding process.



**Restoration:** Many organizations have started programs to help recover the Clapper Rail population. In San Diego, the Chula Vista Nature Center along with the Tijuana Estuary monitors the population of Clapper Rails and has a captive breeding program. These restoration programs along with Sea World and the San Diego Zoological Society have released hundreds of captive raised Clapper Rails to marshes within bays and estuaries of Southern California.



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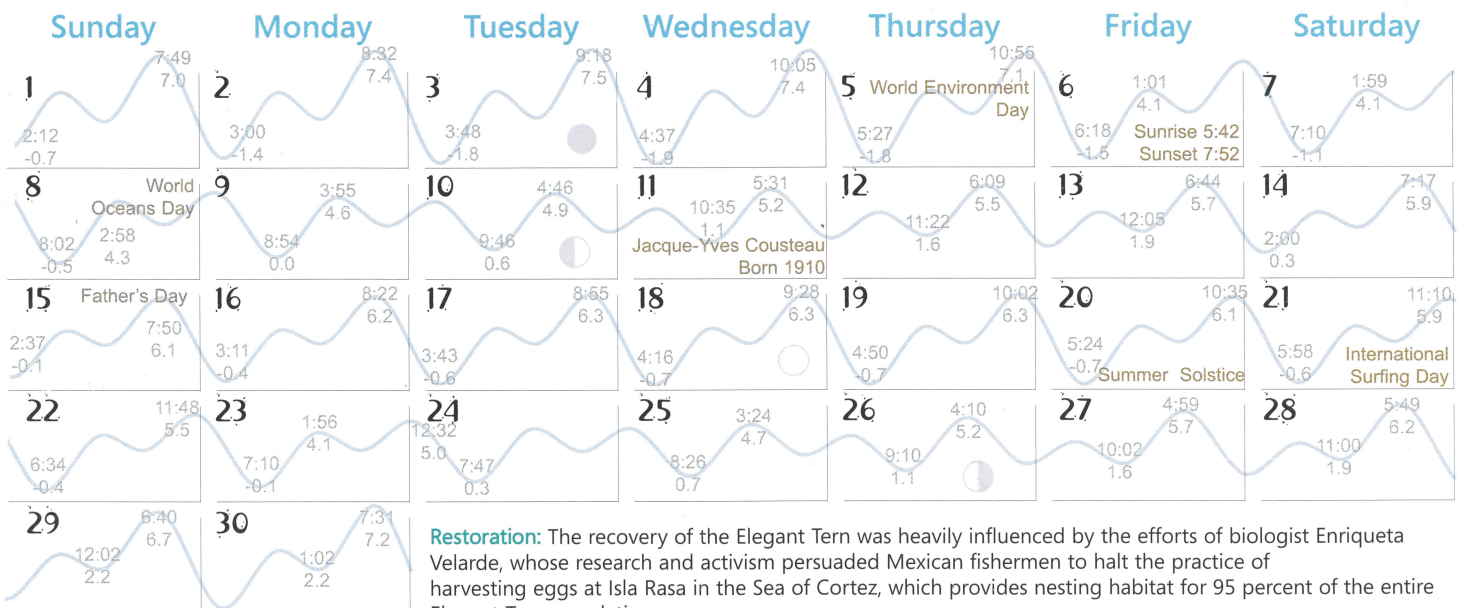
# Elegant Tern



## June



The shaggy-crested Elegant Tern (*Sterna elegans*) was first found nesting in the U.S. in San Diego Bay in 1959. Land development is a leading cause of many of the Elegant Tern's problems as it has led to a decrease in the number of possible breeding areas for the tern along with a series of other negative impacts, including introduced predators. It is currently listed as a Species of Special Concern in California.



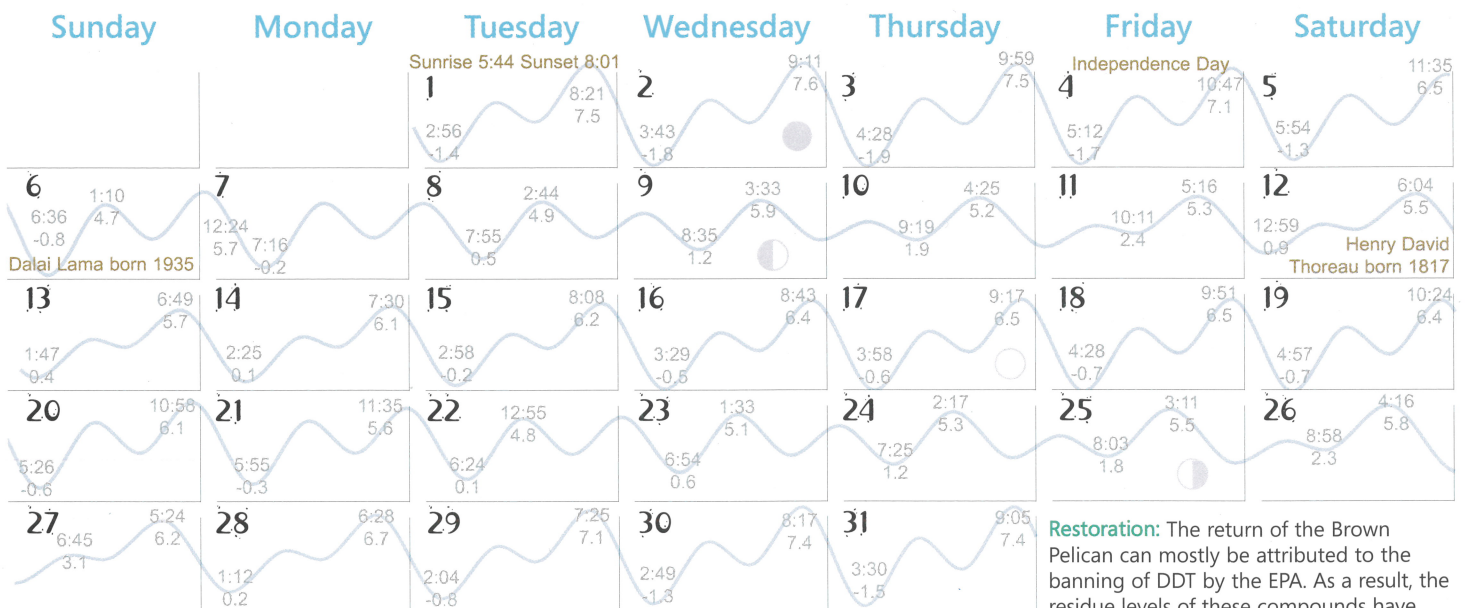


## California Brown Pelican

# July



The California Brown Pelican (*Pelecanus occidentalis californicus*) is almost an iconic symbol of San Diego Bay and the rest of the West Coast of North America. The leading cause of their population decline was use of the pesticide DDT in the 1960s and 1970s. This chemical was passed through the food chain and concentrated along the way leading up to pelicans and other predatory birds causing egg-shell thinning.



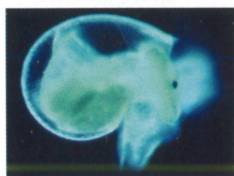
**Restoration:** The return of the Brown Pelican can mostly be attributed to the banning of DDT by the EPA. As a result, the residue levels of these compounds have decreased leading to a corresponding decrease in residue levels in Brown Pelican eggs. There has also been a proportional increase in the eggshell thickness and reproductive success of the bird, causing the Brown Pelican populations to rise.



# Abalone



## September



The tremendous hunting pressure on abalone (*Haliotis spp.*) has led to a near extinction of this slow moving and tasty mollusk. Illegal hunting, over-harvesting, coastal development, and expansion of its natural predators have all fueled the depletion along California coasts.



**Restoration:** Many laws and regulations have been set in place to save the abalone. Divers are only allowed to capture abalone while free diving, as opposed to using SCUBA, and hunters can only collect 3 abalone per day and 24 per year. Also, the size of a captured abalone shell may not be larger than seven inches across and some endangered species are completely illegal to hunt.



## California Least Tern

# November



The California Least Tern (*Sternula antillarum brownii*) breeds primarily within bays and estuaries in Southern California. The steep decline of this subspecies of Least Tern was a result of rapid development of their habitat, over hunting (for decorative hats), and the introduction of domesticated animals. The new conservation dilemma is predation of Least Tern chicks by the Gull-billed Tern which nests in similar areas.



**Restoration:** Organizations such as the San Diego Audubon Society have been working effectively on projects to restore the Least Tern population through the renovation of nesting sites. The few California Least Terns that exist in and around San Diego Bay are currently involved in one of these nesting projects with the long-term goal that their numbers will be repopulated.



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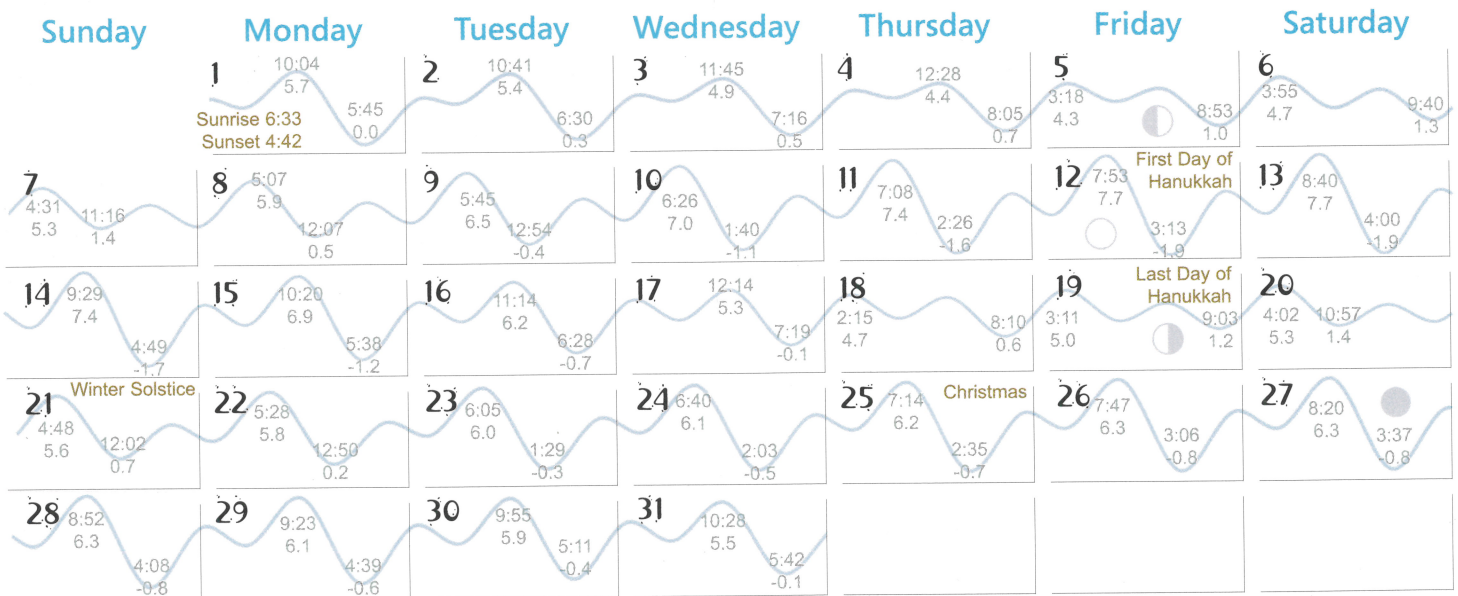


## Western Snowy Plover

# December



The timid little Western Snowy Plover (*Charadrius alexandrinus nivosus*) has become a poster bird for the overdevelopment of the California Coast. Its population has experienced a constant decline due to loss of habitat and increased human interference on sandy beaches. In 2005, there were only 1,700 Snowy Plovers left, causing the bird to be placed on the endangered species list.



**Restoration:** Although conservation efforts have been successful in causing a slight rise in population, the Snowy Plover is still considered an endangered species. The military has been particularly instrumental in Plover conservation because they have closed down entire beaches for the use of nesting endangered shore birds. The government has also implemented strict laws that prohibit the tampering of any Snowy Plover nest.