



# State of the Park Report

## Cabrillo National Monument California



**April 2013**

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Disclaimer. This State of the Park report summarizes the current condition of park resources, visitor experience, and park infrastructure as assessed by a combination of available factual information and the expert opinion and professional judgment of park staff and subject matter experts. The [internet version](#) of this report provides the associated workshop summary report and additional details and sources of information about the findings summarized in the report, including references, accounts on the origin and quality of the data, and the methods and analytic approaches used in data collection and assessments of condition. This report provides evaluations of status and trends based on interpretation by NPS scientists and managers of both quantitative and non-quantitative assessments and observations. Future condition ratings may differ from findings in this report as new data and knowledge become available. The park superintendent approved the publication of this report.

# Executive Summary

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The mission of the National Park Service is to preserve unimpaired the natural and cultural resources and values of national parks for the enjoyment, education, and inspiration of this and future generations. NPS Management Policies (2006) state that “The Service will also strive to ensure that park resources and values are passed on to future generations in a condition that is as good as, or better than, the conditions that exist today.” As part of the stewardship of national parks for the American people, the NPS has begun to develop State of the Park reports to assess the overall status and trends of each park’s resources. The NPS will use this information to improve park priority setting and to synthesize and communicate complex park condition information to the public in a clear and simple way.

The purpose of this State of the Park report is to:

- Provide to visitors and the American public a snapshot of the status and trend in the condition of a park’s priority resources and values;
- Summarize and communicate complex scientific, scholarly, and park operations factual information and expert opinion using non-technical language and a visual format;
- Highlight park stewardship activities and accomplishments to maintain or improve the State of the Park;
- Identify key issues and challenges facing the park to help inform park management planning.

Cabrillo National Monument commemorates Juan Rodriguez Cabrillo's voyage of exploration and its significance. The monument protects, preserves, and manages the cultural and natural resources and associated values in a manner that leaves them unimpaired while providing a high quality educational and recreational experience for all visitors. The purposes of Cabrillo National Monument are:

1. To commemorate the 1542 voyage of exploration and accomplishments of Juan Rodriguez Cabrillo and communicate this story and its significance to visitors and local residents.
2. To preserve, restore, protect, interpret and enhance the significant cultural and natural resources within and adjacent to the park.
3. To provide visitors the opportunity to enjoy one of the great harbor views of the world and to experience and understand the relationship humans have with their land and sea environment.

Cabrillo National Monument, located at the southern tip of the Point Loma Peninsula within the Point Loma Ecological Conservation Area, is an effective island of rare habitats that is isolated from other natural lands by the ocean, San Diego Bay, and urbanization. The significance of the park is enhanced by the presence of the Old Point Loma Lighthouse, one of the first eight lighthouses built along the west coast by the U.S. government in the 1850s. There are also 19 historical structures of the U.S. Army's coastal defense system at Fort Rosecrans, which protected the aircraft industry and naval port of San Diego during world War II; one of the best land-based sites from which to watch the annual migration of Pacific gray whales; one of the few protected and accessible intertidal communities on the Southern California mainland; and a representative example of the rapidly disappearing, and increasingly important, coastal sage scrub ecosystem.

The park further provides visitors from around the world with the opportunity to enjoy a world-class view of the interplay between natural and cultural resources. Military operations, shipping, the city and harbor of San Diego, coastal landforms, wildlife, Mexico and the Pacific Ocean all illustrate the relationship humans have with their environment.

The summary table below, and the supporting information that follows, provide an overall assessment of the condition of priority resources and values at Cabrillo National Monument based on scientific and scholarly studies and expert opinion. The internet version of this report, available at <http://www.nps.gov/im/stateoftheparks/cabr/>, provides additional detail and sources of information about the resources summarized in this report, including references, accounts on the origin and quality of the data, and the methods and analytical approaches used in the assessments. The Status and Trend symbols used in the summary table below and throughout this report are summarized in the following key. The background color represents the current condition status, the direction of the arrow summarizes the trend in condition, and the thickness of the outside line represents the degree of confidence in the assessment.

Condition Status		Trend in Condition		Confidence in Assessment	
	<b>Warrants Significant Concern</b>		<b>Condition is Improving</b>		<b>High</b>
	<b>Warrants Moderate Concern</b>		<b>Condition is Unchanging</b>		<b>Medium</b>
	<b>Resource is in Good Condition</b>		<b>Condition is Deteriorating</b>		<b>Low</b>

## State of the Park Summary Table

Priority Resource or Value	Condition Status/Trend	Rationale
<b>Natural Resources</b>		<a href="#">web</a> ▶
<b>Rocky Intertidal Communities</b>		More than 100,000 people visit the rocky intertidal at Cabrillo annually. Black abalone and ochre seastars remain extirpated from the park. Mussels crashed in early 1990s and have not returned. The size of giant owl limpets has shown a slow, steady and significant decline for unknown reasons. Kelp and surf grass, along with some other important organisms, remain healthy.
<b>Coastal Sage Scrub</b>		The Mediterranean-type ecosystem is the rarest in the world. Native plant populations have been increasing but are relatively small and isolated from other populations by urbanization. Some are very rare, and threats from invasive species remain.
<b>Reptiles and Amphibians</b>		Five species of lizards, six species of snakes, and the Pacific Slender Salamander occur in the park. Two species of lizards and five species of snakes that were once documented by scientific studies are no longer found here.
<b>Birds</b>		The park is an important stopover location for birds migrating along the Pacific coast during the spring and fall. Thirty-three (33) species of birds breed in the park, and 103 species on the park's certified species list in 2011 are abundant or common.
<b>Terrestrial Mammals</b>		Twenty-six (26) species of terrestrial mammals that are associated with the coastal sage scrub ecosystem occur in the park. Foxes and deer are no longer found here. The frequency of coyote sightings has been increasing. Ten species of bats have been documented by recent inventories.
<b>Invasive Plants and Animals</b>		Sixty-seven (67) invasive plant species have been documented in the park, and 10 of these are common. Argentine ants have recently been found in the park and seem to be increasing.
<b>Invertebrates</b>		Insects, spiders, and other invertebrates are an important component of the sage scrub ecosystem but have not been well studied. Sixty-seven (67) species of spiders have been discovered in the park.
<b>Marine Water Quality</b>		Extensive water quality monitoring of an adjacent waste water treatment plant indicates that effluent does not reach Cabrillo. Several potential sources of pollution exist nearby in heavily urbanized San Diego Bay. Water quality from the bay seems acceptable, but not all pollutants are well understood.

<b>Cultural Resources</b> <a href="#">web</a> ▶		
<b>Old Point Loma Lighthouse</b>		The Old Point Loma Lighthouse and associated cistern are identified as contributing features to the monument. The Historical integrity is maintained and the level of documentation and research of the lighthouse are good. The lighthouse is in good condition based on its Facility Condition Index of 0.010.
<b>Coastal Defense Structures</b>		Cabrillo NM has an excellent collection of 19 significant historical coastal defense structures (1918–1942) that were part of a coastal defensive weapons system of the World War I and World War II eras, and retain most aspects of their integrity from those eras. They have an overall Facility Condition Index of Good. These sites have special meaning to many World War II veterans, historians, military history enthusiasts, and military personnel who visit the park. The interpretive theme is served by the human element involved, and the physical demonstration of how offensive versus defensive technology so rapidly render each other obsolete.
<b>Other Historic Structures</b>		Cabrillo NM has 18 other historic structures that are included on the List of Classified Structures. These comprise a wide range of facilities including a 1935 stone comfort station restroom, 1855 brick cistern, a bronze plaque commemorating the first director of the National Park Service, and the 1935 CCC stone wall bordering the road around the lighthouse. The Mission 66 visitor center complex (consisting of 13 components) has been determined eligible for nomination to the National Register of Historic Places.
<b>Cultural Anthropology</b>		Limited research on anthropological themes associated with the monument has been conducted with the majority of work concentrating on consultation with Tribes and Latino groups. The park is operating without an ethnohistory identifying significant anthropological themes that could bolster other interpretive and resources efforts.
<b>Archeological Resources</b>		Ten identified and documented archaeology sites occur within the monument (eight pre-contact and two historic sites). Three of the pre-contact sites were investigated and determined to lack integrity due to erosion and road construction. The threat of erosion continues for all other identified sites. Approximately 20% of monument lands has been intensively surveyed, but little subsurface testing has been conducted. Condition assessments in 2008 found that the sites are at risk for natural disturbances. The monument has an archaeological overview document completed (Kelly and May 2001) but does not have a monitoring or treatment plan for known sites or current proposals to conduct further inventory.
<b>Cultural Landscapes</b>		A detailed cultural landscape inventory has been completed for the Mission 66 theme, but four other identified inventories are needed.
<b>History</b>		The Monument does not have a current Administrative History or Historic Resources Study completed. Historic research is driven largely by the needs of interpretive programs. Baseline documentation is excellent for some themes (e.g. the Lighthouse) but completely lacking for others.
<b>Museum Collections</b>		The museum facility meets Department of the Interior standards outlined in the NPS Museum Handbook but is located in an area with time restrictions for work. The monument does not have a professional curator on staff or a curator of record in the network to process, curate, and maintain the assemblages and archives. The monument is operating without a current Museum Management Plan, and current data is inadequate for determining the percent of objects catalogued and the quality of the data records.
<b>Visitor Experience</b> <a href="#">web</a> ▶		
<b>Number of Visitors</b>		The total of 813,351 visitors to the park in 2011 was greater than the five-year average of 756,104 visitors for 2006–2010.

<b>Visitor Satisfaction</b>		The five-year average for visitor satisfaction was 96.4% for FY08–FY12. However, only about 100 (all in the month of August) out of the more than 750,000 visitors to Cabrillo NM each year are sampled in this standardized survey.
<b>Ranger Programs – Talks, Tours, and Education Programs</b>		Park staff and partners support numerous interpretive presentations and exhibits, the Sea-to-Shining-Sea program for schools, living history programs, and printed and electronic media.
<b>Interpretive Media – Brochures, Exhibits, Signs, and Website</b>		The <i>Cabrillo Journal</i> , the park’s newspaper, is published twice a year and distribution is 10,000 copies per issue. Some information in the park brochure is no longer accurate, and the map in the brochure and on the park website lack important details. Upgrades to exhibit cases in the visitor center were made in 2011. Coastal defense structures are not open to the public.
<b>Civic Engagement</b>		Six annual special events (e.g. Whale Watch Weekend and Intertidal Life Festival, Founders Day) are a success with increasing participation from exhibitors and visitors. Many of the park’s busiest days coincide with these special events.
<b>Accessibility and Safety</b>		A number of improvements have been made to increase accessibility for Americans with disabilities, such as assisted listening and closed captioning in the park auditorium, tactile displays at the lighthouse and Kelp Forest and Whale Overlook displays, and availability of the park brochure in Braille. Safety training for park staff has been a priority, and number of safety incidents or accidents is very low.
<b>Partnerships</b>		Strong volunteer participation and low turnover. The park has strong partnerships with the Cabrillo National Monument Foundation, the Maritime Museum, and the military.
<b>Park Infrastructure</b> <span style="float: right;"><a href="#">web</a> ▶</span>		
<b>Facility Condition Index (Overall FCI)</b>		The 63 assets at CABR have an overall FCI of 0.061, which is Good based on industry and NPS standards. The FCI is the cost of repairing an asset divided by the cost of replacing it, and is used to measure the condition of buildings, roads, trails, water systems, and other park infrastructure assets.
<b>Energy Consumption</b>		Energy consumption (BTUs per gross square footage of buildings) at the park in 2012 was 2.8% lower than the average for the previous four years.
<b>Water Consumption</b>		Water consumption at the park in 2012 was 32.7% lower than the four-year average for 2008–2011.
<b>Park Carbon Footprint</b>		The largest greenhouse gases emission sector for Cabrillo National Monument is transportation, totaling 194 metric tons of CO <sub>2</sub> equivalent. The park has six electric vehicles in use within the monument.

## Summary of Stewardship Activities and Accomplishments to Maintain or Improve Resource Condition:

The list below provides selected examples of stewardship activities and accomplishments by park staff and partners to maintain or improve the condition of priority park resources and values for this and future generations. See Chapter 3 for additional examples.

### Natural Resources

- Tidepool Protection, Education and Restoration Program (TPERP) is a very successful collaboration between park staff and the Volunteers-In-Parks (VIP) Program to protect the fragile intertidal system and to provide school children and other park visitors with high-quality, park-based learning experience. Participants are involved in monitoring of the tidepools and shorebirds, as well as protecting park resources and educating visitors.
- The rocky intertidal monitoring program is 21 years old and has produced valuable long-term scientific data that most research institutions are unable to collect.

- The removal of invasive and non-native plants over the past two decades has restored several acres of coastal sage scrub. Very few large patches of weeds remain.
- The [Cabrillo Oil Spill Response Plan](#) was added to the [San Diego Area Contingency Plan \(ACP\)](#) in 2011. The ACP plan is followed by response agencies and personnel in the event of an oil spill.

## Cultural Resources

- The Museum Storage Building—a state-of-the-art facility—was built to protect historical artifacts.
- The park receives regular cyclic funding for repairs of coastal defense structures.
- Park staff submitted funding requests for an administrative history, archeological assessments, and other cultural landscape-related projects.

## Visitor Experience

- The park has partnered with the Maritime Museum of San Diego as they build a replica of the *San Salvador*, Cabrillo's flagship, at Spanish Landing. Park education staff and the Maritime Museum of San Diego staff are developing curriculum-based programs to be presented to third through fifth graders. Park staff and volunteers wearing clothing representative of the 1540s provide interpretation of the history of Cabrillo's voyage of discovery to visitors at the construction site. A web cam provides real-time still images of the progress of the building of the *San Salvador* to our visitor center.
- The Sea-to-Shining Sea Program allows virtual field trips to the rocky intertidal habitat and lighthouse and is viewed in classrooms throughout California and the world. Students can have real-time interaction with park rangers that they can see and ask questions about the tide-pools and lighthouse.
- The Kelp Forest and Whale Watch Overlook has been remodeled with new signs and displays. Visitors can relax on new benches under canopies that look like sails.
- The Parks and Open Spaces Day annual event has participation from county, state, local organizations throughout southern California; each year, this event has more participants and gains in popularity.
- Our education program provides curriculum-based school programs on five topics. Grades 2 through 5 are taught about the "Life in the Coastal Sage Scrub," "Kumeyaay Supermarket," "Rocky Intertidal," "Lighthouse," and our most popular, "Cabrillo and the Age of Exploration."

## Park Infrastructure

- Cabrillo has become a trash-free park to reduce staff costs associated with removing visitor trash and litter from the park, and to reduce the park's impact on landfill.
- Restoration of the Old Point Loma Lighthouse was completed with repairs made to the roof, new weather sealing, and repainted railings.
- Regular preventive maintenance and cyclic funding requests are utilized to maintain the assets of the park in good condition.
- Upgrades to electrical panels, HVAC systems, and wastewater systems have improved the safety, efficiency, and longevity of those systems.
- Construction of the Assistant Keeper's Quarters adjacent to the lighthouse, with a historic Fresnel lens on display allows visitors to view it up-close and learn about its operation.
- Slurry seal applied to the park's roads and parking lots in FY 11 has improved the condition of those assets.
- To reduce greenhouse gas emissions and to save energy, the park has two rooftop solar arrays, and replaced several gasoline-powered vehicles with electric vehicles.
- A vault toilet was recently installed at the Tidepool Parking Lot, providing a sanitary, accessible, and cost-effective improvement for the thousands of visitors that visit Cabrillo's tidepools.

# Key Issues and Challenges for Consideration in Management Planning

## Natural and Cultural Resources

The rocky intertidal habitat at Cabrillo represents a nexus of several management planning issues. It is one of the most popular features of the park, receiving more than 150,000 visitors per year ([Phillips et al. 2013](#)). Twenty years of long-term monitoring has identified many changes during the past two decades ([Engle and Davis 2000](#), [Becker 2006](#), Pister et al. *in prep*). Some of the changes are likely due to visitor impacts, and others are likely due to factors operating outside the park's immediate control. Cabrillo has taken several successful steps to limit the impacts due to visitors, most notably the Tidepool Protection, Education and Restoration Program (TPERP). However, intertidal life is not adapted to withstand high levels of visitation and determining an appropriate number of visitors to the habitat without impairing it is a key planning issue for the park. The long-term monitoring program has identified

several ecological changes requiring further research to understand and inform management actions. Investigating these research questions is currently beyond the park's capabilities. In January of 2012, the State of California established the Cabrillo State Marine Reserve, a no-take marine protected area, around the park. Enforcement on the water, however, is lacking and illegal commercial lobster fishing is currently a problem.

Non-native species, in particular weedy plants, remain a constant threat to the animals and plants of the Coastal Sage Scrub. The park has a goal to be "weed free" by 2016. The current Vegetation Management Plan ([Cabrillo National Monument 1992](#)) was last updated in 1992 and is no longer consistent with NPS policies (for example it encourages maintaining non-native species). The park has begun drafting a new updated plan that conforms to NPS policies.

Overshadowing all our concerns for the natural resources are the potential consequences of rapid climate change and ocean acidification. Increasing temperature, decreasing rainfall, and decreasing pH of seawater will impact most, if not all, species of the coastal sage scrub and rocky intertidal ecosystems at Cabrillo ([Harley et al. 2006](#), [Intergovernmental Panel on Climate Change 2007](#), [Wootton et. al 2008](#), [Hoegh-Guldberg and Bruno 2010](#)). However, we do not understand what the additive effects will be of climate change and other disturbances, such as urban development and invasive species.

The 19 coastal defense structures in the park represent a fascinating glimpse into the country's mentality and an accelerating arms race between land, sea, and air armament during WWI and WWII, and yet most of the structures are closed to the public. Although some structures are very difficult to access, the park is beginning to plan how to open some of them to the public.

## Visitor Services

The National Park Service as an agency is trying to improve connections with demographic groups that visit national parks infrequently (NPS Call to Action). Latin American and urban citizens are two of these groups living in abundance within easy driving distance of Cabrillo National Monument. The park plans to take advantage of its location within metropolitan San Diego to increase engagement with these audiences in particular.

Public transportation to the park has decreased over the last several years. In addition, one of the greatest challenges schools face is transporting students on field trips. Cabrillo is planning on enhancing both public and student transportation to the park through partnerships. At the same time, the park is using the internet and distance learning programs to expose students to the park's resources within their own classrooms.

The Cabrillo National Monument centennial is in 2013, and the National Park Service centennial is in 2016. Celebrations that enhance the interpretive themes of Sixteenth Century Spanish Exploration, the Lighthouse Period, and WWI and WWII to further engage the public are currently being planned.

## Park Infrastructure

The Bayside Trail is a historic road that connects visitors to healthy coastal sage scrub, a superb eastern view of San Diego harbor, and potentially to coastal defense structures in the future, but the trail has been undercut by landslides. Current repair estimates are approximately \$1 Million. A planning strategy for the use of Recreation Fee 80% funds for FY 13 and FY 14 will address this issue and allow repair of the trail. The challenges in dealing with maintaining roads and trails are being met with a combination of regular cyclic funding, five year planning strategies, and the use of volunteers so that visitors can experience the full breadth of resources at Cabrillo.

Cabrillo currently obtains about one quarter of its energy needs from solar panels and uses seven electrical vehicles within the park. Our greatest source of carbon emissions, however, is from vehicle use and transportation. Park staff would like to further reduce the use of fossil fuels in the management of the park. However, maintenance costs to Neighborhood Electric Vehicles (NEVs) are equal to or greater than the cost of using gasoline vehicles. The park will continue its commitment to the use of electric vehicles, and seek funding to further enhance its electric fleet.

Rehabilitation of the Tidepool Parking Lot remains a challenge to park management. Reducing the grade of the lot, adding a bus turnaround, sidewalks, and trail improvements are all part of the approved rehabilitation plan. Portions of the plan have been implemented, including a vault toilet and new interpretive kiosk. Estimates for the remaining work are over one million dollars. A planning strategy to use limited Recreation Fee 80% funds is being developed for this project.

# Chapter 1 - Introduction

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This State of the Park report for Cabrillo National Monument is the second to be produced by the National Park Service. Its purpose is to assess the overall condition of the park's priority resources and values, communicate complex park condition information to visitors and the American public in a clear and simple way, and to inform visitors and other stakeholders about stewardship actions being taken by park staff to maintain or improve the condition of priority park resources for future generations. The State of the Park report uses a standardized approach to focus attention on the priority resources and values of the park based on the park's purpose and significance, as described in the park's Foundation Document or General Management Plan. The report:

- Provides to visitors and the American public a snapshot of the status and trend in the condition of a park's priority resources and values.
- Summarizes and communicates complex scientific, scholarly, and park operations factual information and expert opinion using non-technical language and a visual format.
- Highlights park stewardship activities and accomplishments to maintain or improve the state of the park.
- Identifies key issues and challenges facing the park to inform park management planning.

The process of identifying priority park resources by park staff and partners, tracking their condition, organizing and synthesizing data and information, and communicating the results will be closely coordinated with the park planning process, including natural and cultural resource condition assessments and Resource Stewardship Strategy development. The term "priority resources" is used to identify the fundamental and other important resources and values for the park, based on a park's purpose and significance within the National Park System, as documented in the park's foundation document and other planning documents. This report summarizes and communicates the overall condition of priority park resources and values based on the available scientific and scholarly information and expert opinion, irrespective of the ability of the park superintendent or the National Park Service to influence it.

Cabrillo National Monument commemorates Juan Rodriguez Cabrillo's voyage of exploration and its significance, and protects, preserves, and manages the cultural and natural resources and associated values in a manner that leaves them unimpaired while providing a high quality educational and recreational experience for all visitors. The purposes of Cabrillo National Monument are:

1. To commemorate the 1542 voyage of exploration and accomplishments of Juan Rodriguez Cabrillo and communicate this story and its significance to visitors and local residents.
2. To preserve, restore, protect, interpret and enhance the significant cultural and natural resources within and adjacent to the park.
3. To provide visitors the opportunity to enjoy one of the great harbor views of the world and to experience and understand the relationship humans have with their land and sea environment.

Cabrillo National Monument is located at the southern tip of the Point Loma Peninsula within the Point Loma Ecological Conservation Area (PLECA MOU). The monument is an effective island of rare habitats that is isolated from other natural lands by the ocean, San Diego Bay, and urbanization. The significance of the park is enhanced by the presence of the Old Point Loma Lighthouse, one of the first of eight lighthouses built along the West coast by the U.S. Government in the 1850s. There are also 19 significant historical structures of the U.S. Army's coastal defense system at Fort Rosecrans, which protected the aircraft industry and naval port of San Diego during World War II. Cabrillo offers one of the best land-based sites from which to watch the annual migration of Pacific gray whales; one of the few protected and accessible intertidal communities on the Southern California mainland; and a representative example of the rapidly disappearing, and increasingly important, coastal sage scrub ecosystem. The park further provides visitors from around the world with the opportunity to enjoy a world-class view of natural and cultural resources in juxtaposition. Military operations, shipping, the city and harbor of San Diego, coastal landforms rich in geologic history, wildlife, Mexico and the Pacific Ocean all illustrate the relationship humans have with their environment.



Figure 1. Map of Cabrillo National Monument.

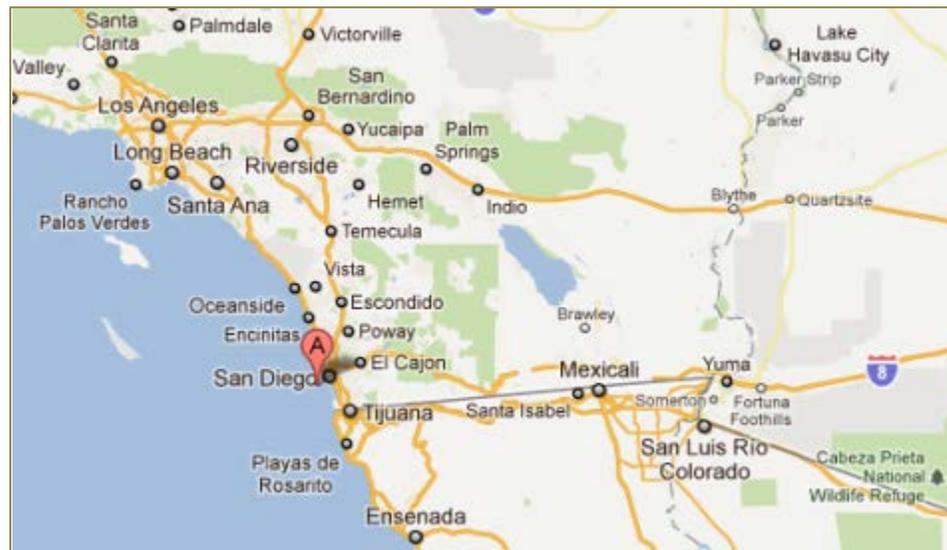


Figure 2. Location of Cabrillo National Monument in southern California.

# Chapter 2 - State of the Park

The State of the Park is summarized below for four categories—Natural Resources, Cultural Resources, Visitor Experience, and Park Infrastructure—based on a synthesis of the park’s monitoring, evaluation, management, and information programs, and expert opinion. Brief resource summaries are provided below for a selection of the priority resources and values of the park. Clicking on the [web ▶](#) symbol found in the tables and resource briefs below will take you to the internet site that contains content associated with specific topics in the report.

The scientific and scholarly reports, publications, datasets, methodologies, and other information that were used as the basis for the assessments of resource condition are referenced and linked throughout the report and through the [internet version of this report](#) that is linked to the NPS [IRMA data system](#) (Integrated Resource Management Applications). The internet version of each report, and the associated workshop summary report available from the internet site, provide additional detail and sources of information about the findings summarized in the report, including references, accounts on the origin and quality of the data, and the methods and analytical approaches used in data collection and the assessments of condition. Resource condition assessments reported in this State of the Park report involve expert opinion and the professional judgment of park staff and subject matter experts involved in developing the report. This expert opinion and professional judgment derive from the in-depth knowledge and expertise of park and regional staff gained from their being involved in the day-to-day practice of all aspects of park stewardship and from the professional experience of the participating subject matter experts. This expert opinion and professional judgment utilized available factual information for the analyses and conclusions presented in this report. This State of the Park report was developed in a park-convened workshop.

## 2.1. Natural Resources

### Rocky Intertidal Communities



[web ▶](#)

The rocky intertidal community at Cabrillo National Monument (a.k.a. "the tidepools") exists in an urban setting that is easily accessible to 3.5 million residents of San Diego and nearby areas, and yet is considered to be the most intact rocky intertidal habitat on the mainland of Southern California because of its protected status. More than 213,000 people visited the rocky intertidal at Cabrillo in 2011 (Phillips et al. 2013). Management of this resource involves a balance between providing for the inspiration, education, and enjoyment of this generation, but leaving it unimpaired for this and future generations.

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Mussels</b>	Percent cover		Mussel populations along the Southern California coast crashed in early 1990s, and while they have recovered at other locations, they have not recovered at Cabrillo (Becker 2007, Becker 2006, Becker 2005, Pister et al. <i>in prep</i> ).
<b>Giant Owl Limpet</b>	Average size and abundance of limpets		Average size of Giant Owl Limpets has decreased by 5 mm per decade, for unknown reasons. Abundance has remained steady (Becker 2006, Pister et al. <i>in prep</i> ).
<b>Abalone</b>	Number of individuals		Abalone have not been found in the park since the 1980s. They were added to the federal Endangered Species List in 2011. After years of overfishing a withering disease wiped them out in the mid-1980s (Becker 2006, Raimondi et al. 2002, Alstatt et al. 1996, Richards and Davis 1993, Zedler 1976, Pister et al. <i>in prep</i> ).
<b>Ochre Seastar</b>	Number of individuals		Ochre seastars have not been found in the park since the 1980s. A wasting disease knocked down populations in the 1970s. Despite small populations a few miles up and down coast, they have not returned to Cabrillo (Becker 2006, Pister et al. <i>in prep</i> , Engle 2005).
<b>Barnacles</b>	Percent cover		Barnacle populations are highly variable through time. Of the four common species living in the park two have decreased slightly over the last 10 years while the other two

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
			have remained steady (Becker 2006, Pister et al. <i>in prep</i> ).
<b>Surf Grass, Turf Algae, Rockweed, Kelp</b>	Percent cover		Surfgrass and turf algae have increased or remained steady over the last 20 years. Rockweed has decreased over the last five years and is decreasing regionally. Boa kelp has increased over the past two years (Becker 2006, Pister et al <i>in prep</i> , Yap, personal communication).

## Resource Brief - Rocky Intertidal Community:

“The appearance of the Cabrillo National Monument tide pool area has changed dramatically since the early 1960s. At that time, mussels and sea stars visually dominated the space. Everywhere you looked, you saw vast expanses of mussel beds stretching from the water up rock and cliff faces at least six feet, fringed on the lower edge with splashes of bright orange and purple color of the *Pisaster* sea stars. Also green and black abalone and lobster were common elements of the community.” (Gary Davis, Visiting Chief Scientist, National Park Service, retired.)



Photographs of mussel beds at Cabrillo National Monument in 1962 (left), and at the same location in 2005 (right).

In 1990, alarmed at what appeared to be significant declines in rocky intertidal flora and fauna, NPS scientists began a monitoring program focused on 13 species playing key ecological roles in the environment. After five years of monitoring, 7 of those 13 species had declined, 5 had remained stable, and only 1 had increased. Two of those species, black abalone and ochre seastars, had disappeared from Cabrillo entirely, even though they were once very abundant.

To mitigate these impacts, Cabrillo established the Tidepool Protection, Education, and Restoration Program (TPERP), which had three elements. First, and arguably most important, an increase in staff and volunteer presence was devoted to the rocky intertidal area of the park. Currently, TPERP consists primarily of volunteers who do their best to interpret the intertidal flora and fauna to park visitors, but also to remind them of Cabrillo’s no-collecting rules and that the touching of marine organisms needs to be done gently, as if touching one’s own eyeball. Second, three management zones were established, and one-third of the rocky intertidal zone at Cabrillo was closed to the public in 1996, to allow recovery and to serve as an ecological reference area for the remainder of the park. This ecological reference area has been extremely important as a scientific baseline area and for learning about and informing visitors, school children, and others about the effects of human activity within the rocky intertidal community and the importance of careful management. Third, the park made a commitment to long-term monitoring *in perpetuity* of the rocky intertidal resources. The protocols for this long-term monitoring are standardized from Alaska through Baja California, so that analyses of the data can determine if changes found at Cabrillo are local to Cabrillo, regional (coastal California south of Point Conception), or widespread.

TPERP is regarded as a success story for Cabrillo, and rightly so. Peer-reviewed scientific studies have shown that the sizes of several invertebrates are larger at Cabrillo than anywhere else in Southern California, and that the TPERP intertidal volunteers play a huge role in protecting the intertidal resources at Cabrillo. Surf grass, which provides food and shelter for many other species, remains

abundant where it was found in 1990, and has increased in cover in transects where boa kelp dominated in 1990. Recently boa kelp has been increasing. Even so, the Cabrillo rocky intertidal is not what it used to be. Today's visitor experiences something far different from visitors of 30 years ago. Black abalone and ochre seastars remain extinct within the park. Abalone were heavily overfished, and both seastars and abalone succumbed to disease in the 1970s and 1980s, respectively (Richards and Davis 1993, Alstatt et al 1996, Raimondi et al. 2002). Mussels, the most ecologically dominant organism in the west coast rocky intertidal community, crashed in the late 1980s and early 1990s along the southern California coast. While their abundance recovered in two or three years over much of that area, the recovery in Cabrillo has been much slower, with mussels reappearing only sparsely in management zone 1 in 1995. Recent analyses of the last 20 years of monitoring data revealed a decline in the size of owl limpets for unknown reasons. This decline is of special concern because owl limpets change from juveniles to males to females as they grow larger, so loss of the largest individuals skews the sex ratio and has a large impact on egg production. *Silvetia* (rockweed) is declining at Cabrillo but less so than at other areas in southern California (Becker 2006, Pister et al. *in prep*, Yap, personal communication).

Comparisons of species composition and abundance between Cabrillo and other Southern California rocky intertidal areas have been used to quantify the impacts of trampling, collecting and adjacent land development. In many ways the Cabrillo rocky intertidal is in better shape than most other places in the region. However, the gradual changes documented in the Cabrillo rocky intertidal community illustrate the concept of "shifting baselines". What are considered "normal" or good conditions now are very different than what was here decades ago. The current conditions at Cabrillo do not reflect the historical conditions at Cabrillo or at those other locations.

## Coastal Sage Scrub



[web](#) ▶

Cabrillo contains approximately 160 acres of relatively undisturbed coastal sage scrub habitat that is becoming increasingly rare in Southern California, and which supports many plant and animal species that are more commonly found south of the United States border. The most widespread vegetation alliances in the park are *Salvia mellifera* - *Eriogonum fasciculatum*, *Encelia californica* - *Artemisia californica* and *Rhus integrifolia* (Klein and Keeler-Wolf 2010). A prominent ridgeline that runs the length of the Point Loma peninsula plays a significant role in defining the plant communities of CABR. West of the ridgeline is dominated by the coastal sage scrub plant community with isolated patches of maritime succulent scrub, southern foredune, and coastal bluff scrub scattered across the marine terraces found above the western shores of the park. The coastal sage scrub community can also be found east of the ridgeline, although significant patches of southern maritime chaparral are found in the steeper east- and north-facing drainages on the eastern edge of the park. The ridgeline itself is highly disturbed as most of the park infrastructure is located here. Where natural areas do exist in this zone, a mix of coastal sage scrub and southern maritime chaparral communities are typically encountered. The park supports 12 species of reptiles and amphibians, at least 15 species of mammals and an abundance of invertebrate species (Atkinson et al. 2003). A multitude of birds species have been identified at CABR (Edwards 2002, Madden-Smith et al. 2012). Residents use the native vegetation for nesting habitat while migrants use this area of the Point Loma Peninsula as a stopover along their migratory route.

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Species Composition</b>	Richness and diversity of native species		Native species richness and diversity have remained constant over the 15-year period in which monitoring has been conducted. The most common coastal sage scrub (CSS) species are well represented. Status and trends for the less common annual species, which play an important role in the coastal sage scrub habitat, are not well known because of the difficulty of monitoring rare annual species.
<b>Abundance</b>	Percent cover of five representative species		The percent cover of five representative species ( <i>Artemisia californica</i> , <i>Encelia californica</i> , <i>Eriogonum fasciculatum</i> , <i>Rhus integrifolia</i> and <i>Salvia mellifera</i> ) has remained constant over the 15-year monitoring period. These five species account for approximately 70% of the average percent cover detected in monitoring transects.
<b>Abundance of State-listed Species</b>	Percent cover of two representative species		<i>Euphorbia misera</i> abundance has remained relatively constant over the 15-year monitoring period. However, <i>Ceanothus verrucosus</i> has exhibited a moderate decline in abundance over the same time period.

## Resource Brief – Coastal Sage Scrub

Coastal Sage Scrub (CSS) is a community of low-growing shrub species located along the immediate southern coast of California and northern Baja Mexico (Barbour et al. 2007). The CSS community is part of the broader Mediterranean-climate ecosystem, which is globally rare (covering approximately 2% of the Earth's land surface) yet accounts for nearly 15% of the total vascular plant flora (Rundel 2004). Favorable climate and environment has led to a vast majority of the potential habitat having been developed and is now highly degraded. Within California, it is estimated that no more than 15% of the original distribution of CSS is still intact and what lands do remain are highly fragmented and sensitive to disturbance (Westman 1981, Minnich and Dezzani 1998, Taylor 2004). With so little habitat remaining for the typically narrow-ranged species of CSS, the potential for local, and even global, extinction for this habitat type exists (Westman 1981).

Cabrillo National Monument (CABR) protects some of the highest quality CSS remaining in San Diego County and the greater southern California area. Many of the most common CSS species are well-represented at CABR, as are many exceptional and sensitive species. Eleven of the species found within the park are listed as sensitive by the California Native Plant Society Rare Plant Program (CNPS 2012). CABR and the Point Loma peninsula are located at the transition between the coastal sage scrub community of southwestern California and the maritime succulent scrub characteristic of northwestern Baja California (Barbour et al. 2007). This unique geographical setting is the driving force behind the unique assemblage of vegetation, which is not found anywhere else in the United States.

Under the management of NPS, the vegetation of CABR is afforded some of the greatest protection possible. However, external forces pose powerful threats to the stability and integrity of native plant communities within CABR. While past land use, urban development and habitat fragmentation has despoiled much of the surrounding landscape (Soule et al. 1992), CABR native landscapes have escaped such degradation. Bounded by development, military infrastructure and water, CABR is an isolated island of natural habitat. It is the effect of this isolation that presents the greatest threat to the CSS community at CABR. The residential and military development serves as a source of non-native species introductions, while at the same time limiting the ability of native species to disperse, restricting the flow of genetic material into and out of the park.

Ecological processes, which are critical to maintaining a healthy native landscape, have also been disrupted. Fire, while never frequent at CABR, has been completely excluded by the military development (NPS 2006). The absence of fire is a potential long-term threat to at least one unique community component, *Ceanothus verrucosus*, which requires fire to germinate (Keeley 1975, Lawson et al. 2010). At the same time, many other unique elements of the flora, especially succulents, are fire intolerant and may have developed to their current extent because of fire exclusion. Most of the larger mammals (bobcats, foxes, etc.) have been extirpated from the park, and lack of habitat continuity is the most likely culprit. Seven species of reptiles have also been lost in recent years for unknown reasons (Atkinson et al. 2003).

The natural resource staff at CABR is committed to improving the quality of CSS habitat in CABR. An annual, statistically robust monitoring program will begin in 2012 to provide park managers with reliable status and trend data for both common and uncommon native plant species (Tiszler et al. 2012). Furthermore, a commitment to be free of invasive species by 2016 will improve habitat quality, particularly for less common, low-lying annuals, by opening up space for native CSS species to re-establish.

### Reptiles and Amphibians



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Lizards	Species richness		Five species of lizards currently occur in the park. The Coronado Island skink and the coast horned lizard once occurred in the park but have since disappeared (Atkinson et al. 2003).
	Capture rates by year		The capture rate for lizards is about 25 times higher than that for the amphibian, and 33 times higher than that for snakes. There is no overall trend in lizard capture rates between 1995 and 2011, and the number of species stayed the same.
	Evenness index		The mean Simpson's Evenness Index was 0.85 between 1995–2011, with no upward or downward trend.

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Snakes	Species richness		Six species of snakes currently occur in the park. The Southern Pacific Rattlesnake is abundant. Six species of snakes are no longer found in the park: California Glossy Snake, Coachwhip, Red Diamond Rattlesnake, Two-Striped Garter Snake, Western Long-Nosed Snake, and Yellow-bellied Racer (Atkinson et al. 2003).
Pacific Slender Salamander	Capture rate		The capture rate for the only amphibian in the park remained steady between 1995–2011.

## Birds



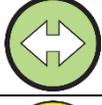
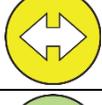
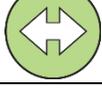
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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Resident Songbirds	Species richness		Thirty-three (33) species of birds breed in the park, and 103 species on the park's certified species list in 2011 are abundant or common.
Migratory Songbirds	Species richness		The park is an important stopover location for birds migrating along the Pacific coast during the spring and fall (Madden-Smith et al. 2012).
Raptors	Species richness		Peregrine Falcons recently returned to a nesting site adjacent to the park. Red-tailed hawks are abundant, and three other hawk species are common.
Shorebirds and Seabirds	Species richness		Numbers of shorebirds, wading birds, and seabirds counted during annual surveys remained stable between 1992–2011.

## Terrestrial Mammals



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Rodents and Shrews	Species richness		Desert Shrews, Ornate Shrews, and 10 species of mice, voles, and woodrats are incidentally captured in livetraps during reptile/amphibian monitoring studies.
Other Mammals	Frequency of sightings		Foxes and deer are no longer found in the park. The frequency of coyote sightings has been increasing. Rabbits and squirrels are common.
Bats	Number of species		Ten species of bats have been detected during three bat inventories in the park (Stokes et al. 2003).

## Invasive Plants and Animals



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Approximately 25% of the plant species found at CABR are of non-native descent (Cabrillo 2009a); however, a large percentage of the park's acreage is relatively free of non-native species and most occurrences are limited to roadsides, trails and facility footprints (Dossey 2006, Lombardo, pers. obs.). In 2009, an NPS Exotic Plant Management Team identified 12 high-priority invasive species

based on the substantial nature of their threat to the ecological integrity of the coastal sage scrub ecosystem in the park (Simpson 2009). A formal monitoring protocol has been developed and will play a critical role in tracking (a) changes in invasive species occurrence and distribution, and (b) the effectiveness of efforts to control invasive species (Irvine et al., *in review*). An aggressive program of eradication is underway and we are aiming for CABR to be free of invasive plant species by 2016.

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Marine Flora</b>	Species richness		Few invasive species are found in the rocky intertidal area. The three species that are present are considered naturalized.
<b>Terrestrial Flora</b>	Number of species detected		A 2003 survey identified 44 unique populations of non-native plant species, 40 of which have been subsequently treated (91% treatment rate) (Dossey 2006, Lombardo, unpublished data).
<b>Terrestrial Fauna</b>	Number of new species detected		Argentine ants have recently been found in the park and seem to be increasing (Menke and Holway 2006). Brown widow spiders have been found in the park.

## Invertebrates [web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Selected Taxa</b>	Species richness		Invertebrates are an important component of the coastal sage scrub ecosystem. Scorpions, spiders, ants, centipedes and other species are captured in pit-fall traps while monitoring reptiles and amphibians. Sixty-seven (67) species of spiders have been discovered in the park. Inventories by the San Diego Natural History Museum are continuing.

## Marine Water Quality [web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Fecal Coliform Bacteria</b>	Colony Forming Units/100mL		Monitoring is conducted by the City of San Diego because of adjacent wastewater treatment plant. Critical threshold has only been exceeded once in the past 10 years.
<b>Heavy Metals</b>	Concentration		Heavy metals are monitored in San Diego Bay. Monitoring is done sporadically ( <a href="#">Engle and Largier 2006</a> ).
<b>Organophosphates</b>	Concentration		Organophosphates are monitored in San Diego Bay. Monitoring is done sporadically ( <a href="#">Engle and Largier 2006</a> ).

## 2.2. Cultural Resources

Cultural Resource programs include a suite of disciplines (anthropology, archaeology, landscape architecture, history, historical architecture and museum curation) that hold culture at the center of research and preservation activities. These disciplines differ in the methods, scale and emphasis at which studies are conducted but generally tie intangible aspects of human history and beliefs with tangible items and places. Because much of the meaningful work for cultural resources relies on bridging stories, concepts, and theories, with places and objects, the condition of cultural resources is qualitatively assessed through a series of measurable aspects of integrity that convey the significance of an area. Generally, the condition of cultural resources falls into three categories: 1) the level of complete inventory and documentation, 2) the physical stability of an area, property or object as it relates to risk of degradation or deterioration, and 3) aspects of integrity. The breadth of cultural resource management activities make it difficult for a single park to accomplish all of the work needed to meet inventory, documentation, and monitoring expectations. These activities tend to be conducted through partnered park and regional assistance as well as agreements and contracts.

### Old Point Loma Lighthouse



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With the discovery of gold in California in 1848, and the rush of the “49ers” in 1849, the new United States territory of California (and 31st state in 1850) rapidly assumed new economic and strategic importance. Providing aids to navigation along the coast, and into strategic ports, became a high priority. Eight lighthouses were built along the coast in the 1850s, including the one now located at Cabrillo National Monument. Completed in 1854, lighted in 1855, the Old Point Loma Lighthouse operated as a lighthouse until 1891. After 1891, its story becomes one of various uses, benign neglect, potential demolition, and eventual restoration and preservation as the prime cultural resource of Cabrillo National Monument. Throughout its history, the Old Point Loma Lighthouse has retained a high degree of historic integrity:



1888 Photo of the Old Point Loma Lighthouse

- Location: It sits where it was built in 1854.
- Setting: Although a modern city and naval base is now visible from the lighthouse, it still sits, somewhat isolated, at the tip of Point Loma.
- Design: Its physical layout is the same as when it was built.
- Materials: Approximately 75% of the structure is original material, including the sandstone walls. The sandstone walls are virtually intact, but over the years all wood elements were stripped out for firewood. The wood rear wing was removed entirely as were the Assistant Keeper’s Quarters, Barn, Oil Shed, and outhouse. Major metal components rusted and the rain catchment basin was bulldozed in 1935. All of this has been restored except for the Barn, Oil Shed and outhouse.
- Workmanship: Of its style, it remains a good example of a planned, standard Cape Cod style lighthouse, built by a Government contractor.
- Feeling: The lighthouse evokes an era, and has become a cherished icon of San Diego. Even more important is the incredible sense of responsibility and dedication exhibited by the Light House Keepers and their families, at light houses throughout the nation, which demonstrates an inspiring value.
- Association: As one of the first eight lighthouses built on the west coast of the United States, the Old Point Loma Lighthouse is associated with Westward Expansion, the California Gold Rush, improvements in navigational aids, the promotion of maritime commerce, and safe travel in the developing West.

Today the lighthouse is the result of various restorations and ongoing preventive maintenance by the National Park Service since 1935. Preservation projects in 1935, 1980, 1982, and 2006 have helped to maintain and preserve the lighthouse you see today. Current maintenance issues include re-establishing the lateral from the French drainage system that channels rainwater from the lighthouse, and prevents it from seeping through the foundation walls. Also, the wood shingle roof of the lighthouse dwelling is near the end of its design life, and will need to be replaced. A request for funding for replacement in 2013 is in the system. Continued planned and preventive maintenance by the National Park Service will help ensure that the Old Point Loma Lighthouse maintains its significance and integrity as part of Cabrillo National Monument.

As described in more detail in the Park Infrastructure section below, the condition of the Lighthouse and other structures at Cabrillo is determined by regular facility inspections, or “condition assessments”, including daily informal inspections and formal yearly inspections. The National Park Service uses a facility condition index (FCI) to indicate the condition of its facilities and infrastructure.

FCI is the cost of repairing an asset, such as a building, road, trail, or water system, divided by the cost of replacing it. The lower the FCI number, the better the condition of the asset. Planned preventive maintenance on critical components of the Lighthouse occurs during the year, using park base budget. Because of its historic designation on the List of Classified Structures (LCS), the Lighthouse is also formally assessed every five years to determine its LCS Condition, which determines whether the structure and its significant features are intact, structurally sound, and performing their intended purpose.

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Documented Condition Assessments</b>	Facility Condition Index from List of Classified Structures database		The Facility Condition Index was 0.010 in 2010, which is Good based on industry and NPS standards. The condition was also rated as Good based on a 2009 formal condition assessment using methodology for the List of Classified Structures.
<b>Historic Integrity</b>	Historic integrity assessment		See explanation of historic integrity assessment above.
<b>Completeness of Documentation</b>	- Determination of Eligibility - Historic Structures Report - Condition Assessments		The lighthouse has a complete and current <a href="#">Historic Structures Report</a> , Historic Structures Preservation Guide, and complete and current national register forms and condition assessments.

## Coastal Defense Structures



[web](#) ▶

A formal [Historic Structures Report for Harbor Defense Structures](#) was completed in 2000 to assess the structures and help the park implement a planning program to restore, rehabilitate, and/or stabilize these increasingly significant military structures. Currently, the 19 Coastal Defense Structures have an overall FCI (Facility Condition Index) of 0.005 resulting in a Good condition based on industry and NPS standards. Because of their historic designation on the List of Classified Structures (LCS), the 19 Coastal Defense Structures are also formally assessed every five years to determine their LCS Condition, which determines whether the structure and its significant features are intact, structurally sound, and performing their intended purpose. Based on the most recent LCS assessments (2007–2011), 12 structures are in Good condition, 5 are in Fair condition, and 2 are in Poor condition.

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Documented Condition Assessments</b>	Facility Condition Index from the List of Classified Structures database		The 19 Coastal Defense Structures have changed from an overall FCI of 0.050 in 2007 to 0.008 in 2011. Based on the most recent LCS assessments (2007–2011), 12 structures are in Good condition, 5 are in Fair condition, and 2 are in Poor condition.
<b>Historic Integrity</b>	Historic Integrity Assessment		See <a href="#">Historic Structures Report for Harbor Defense Structures</a> . Based on integrity of: Location, Setting, Design, Materials, Workmanship, Feeling, and Association.
<b>Completeness of Documentation</b>	- Determination of Eligibility - Historic Structures Report - Condition Assessments		The FCI and LCS condition assessments have been completed and are used to guide management decisions concerning stabilization priorities. A treatment plan for the structures in poor condition has not been completed.

## Other Historic Structures

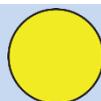


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The other 18 Historic Structures (e.g., 1855 brick cistern, 1935 CCC stone wall, Mather plaque) have an overall FCI of 0.061 in 2011, resulting in a Good condition based on industry and NPS standards. The most recent LCS (List of Classified Structures) assessments in 2006–2009 found that 16 structures are in Good condition, 1 is in Fair condition, and 1 is in Poor condition.

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Documented Condition Assessments</b>	Facility Condition Index from the List of Classified Structures database		Based on the most recent LCS assessments (2006–2009), 16 structures are in Good condition, 1 is in Fair condition, and 1 (the Bayside Trail) is in Poor condition. Two major landslides in 2005 caused by heavy rain have undercut Sylvester Road, and the road adjacent to Searchlight 18 is being undercut. The other 18 historic structures not included above have an overall FCI of 0.061 resulting in a Good condition.
<b>Historic Integrity</b>	Historic Integrity Assessment		Overall assessment of the integrity of: Location, Setting, Design, Materials, Workmanship, Feeling, and Association.
<b>Completeness of Documentation</b>	<ul style="list-style-type: none"> <li>- Determination of Eligibility</li> <li>- Historic Structures Report</li> <li>- Condition Assessments</li> </ul>		The status of documentation overall for the park is relatively unknown.

## Cultural Anthropology



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Documentation</b>	Baseline Documentation Completed		The monument has consulted with Native Tribes and Latino groups affiliated with the park, but baseline documentation identifying anthropological priority resources has not been conducted. However, we honor the Kumeyaay request to not interpret their people beyond their interaction with the initial Spanish contact in 1542, and their material culture extant at that time. An ethnohistory of Point Loma and the monument is necessary as a starting point for needed work. From this study, other anthropological themes can be identified.

## Archeological Resources



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Completeness of Inventories</b>	Percent of park that has been surveyed		Intensive surface surveys have been conducted for 20% of the park, with limited subsurface surveys, but the surface survey may be unreliable because of dense vegetation (Kelly and May 2001). A landform stability model has not been completed to assess site risks. Bedrock is only nine inches below the surface and much of the park consists of steep slopes and altered landscapes unlikely to contain archeological artifacts. Pre-historic settlement was likely limited due to the absence of water.
<b>Site Condition/Stability</b>	Percent of sites in good condition (ASMIS database)		Threats to archeological sites are being addressed as best they can. Site condition assessments, scheduled every five years, have shown only minor changes to site stability.
<b>Documentation</b>	Percent of known sites that have been adequately researched		Ten archeological sites have been identified (eight pre-contact and two historic). Three sites have been further investigated and determined to lack integrity due to erosion and road construction. The other sites have not been assessed for eligibility to the National Register. An Archeological Overview was completed in 2001 (Kelly and May) but this document does not include an adequate monitoring or treatment plan for known sites.

## Cultural Landscapes



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Documentation</b>	Percent of detailed cultural landscape inventories completed		A detailed <a href="#">cultural landscape inventory</a> has been completed for the Mission 66 theme, but inventories are incomplete for the 1930s Monument Landscape Architecture, Cabrillo NM, Coastal Defense Structures, and Old Point Loma Lighthouse.

## History



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Documentation</b>	Currency and completeness of studies		Baseline documents expected for each park unit such as the Historic Resources Study and the Administrative History are outdated. See also: <a href="#">National Register of Historic Places Registration Form for Cabrillo National Monument</a> .
<b>Research</b>	- Completeness of needed research - Number of reports and publications		The park has an extensive library of research materials, but we have not published reports as most of our research is data recovery for baseline studies and to develop interpretive plans, formats and programs. Research results are not well organized.

## Museum Collections



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Museum Facility Integrity</b>	Meets facility standards		Museum facility meets standards based on <a href="#">NPS Museum Handbook</a> , but the location of the facility does not allow for full time use by staff.
<b>Completeness of Curation</b>	- Percent of objects catalogued - Data quality audits		Current data is inadequate for determining the percent of objects catalogued and the quality of the data records.
<b>Adherence to Standards</b>	Percent of applicable standards met		76.58% of applicable standards have been met. The park does not have a curator, curator of record, or a current museum management plan. Work on the collections continues without professional oversight.

## 2.3. Visitor Experience

### Visitor Numbers and Visitor Satisfaction



[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Number of Visitors</b>	Number of visitors per year		The total of 813,351 visitors to the park in 2011 was greater than the five-year average of 756,104 visitors for 2006–2010.
<b>Visitor Satisfaction</b>	Percent of visitors who were satisfied with their visit		The five-year average for visitor satisfaction was 96.4% for FY08–FY12. However, only about 100 (all in the month of August) out of the more than 750,000 visitors to Cabrillo NM each year are sampled in this standardized survey.

### Ranger Programs – Talks, Tours, and Education Programs



[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Education Programs</b>	Number of programs and participants		Seven separate programs are tied to State school curriculum grades 2, 3 and 4. Park interpreters presented 240 programs in 2012 to 7,500 participating students. The Sea to Shining Sea program using the internet has been a big success and is increasing in popularity as awareness among schools grows. Transportation is the greatest limitation to the number of schools visiting the park and is an ongoing challenge.
<b>Ranger Programs</b>	Number of programs and attendance		There were 436 formal interpretation programs in FY12, and 3,120 visitor contacts. The park also provided 118 living history demonstrations in FY12, with 3,234 visitor contacts.
<b>Junior Ranger Programs</b>	Number of programs and participants		Two age-specific programs are in use, and a third has been developed but not implemented. There were 1,280 Junior Rangers sworn in during FY12.

## Interpretive Media – Brochures, Exhibits, Signs, and Website



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Wayside Signs</b>	Condition and currency		A wayside exhibit plan was developed in FY11 with Harper's Ferry Center staff. Thirty-four (34) of the 42 current signs are outdated and will be replaced in FY12.
<b>Exhibits</b>	Cabrillo Exhibit Room		Visitation not recorded. Major upgrades to exhibit cases were installed in FY11.
	Military History Exhibit		Visitation not recorded. Certain exhibit features are currently not functioning.
	Lighthouse and Assistant Keepers Quarters		Visitation not recorded. Exhibit features mostly functioning at new or like-new condition.
	Coastal Defense Structures		A limited number of Coastal Defense Structures are open to visitors during a ranger-led program.
<b>Visitor Center</b>	Visitor Center		Visitation for FY10 was 515,425. Several new exhibits were installed during FY10.
<b>Print Media</b>	Brochure and <i>Cabrillo Journal</i> (newspaper)		Some information in the brochure is no longer accurate. The map lacks important details. The newspaper is published twice a year and distribution is 10,000 copies per issue. The design and layout have recently been updated.
<b>Websites</b>	Currency of CABR website information, number of website hits		The park map and website are difficult to navigate and find information (constraints from the NPS website Content Management System and style guidelines). No information for special events is displayed. The information is not current, and there is a lack of staff for updates.
	CABR webcams – number and web visits		Six webcams get 600 computer hits a day.
	Social media: Facebook updates and “likes,” overall activity		The park has updated Facebook and Twitter accounts, but staff levels are insufficient to maintain the time intensive demands of a relevant web presence in an urban setting.

## Civic Engagement



[web](#) ▶

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Civic Engagement</b>	Special annual events		Six annual special events (e.g. Whale Watch Weekend and Intertidal Life Festival, Founders Day) are a success with increasing participation from exhibitors and visitors. Many of the park's busiest days coincide with these special events.

## Accessibility and Safety



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Accessibility</b>	ADA mobility compliance		All visitor areas are accessible except the rocky intertidal area (alternative is big screen in VC), the Bayside Trail and the lighthouse (historic structure can't be retrofitted). Wheelchairs are available at the Visitor Center.
	ADA accommodations to visual and auditory impairment		Assisted listening and closed captioning are available in the auditorium. Tactile displays at Lighthouse and Kelp Forest and Whale Overlook. Park brochure is available in Braille.
	Public transportation		City bus service is limited (weekdays only). A port district shuttle bus to CABR is in the development phase.
	Bicycle Transportation		The road into the park has bike lanes. There are two bike racks at the Visitor Center and limited repair help available (spare tube, tools).
<b>Law Enforcement Incidents</b>	Contacts (problems)		Contacts have decreased over the past two years. Dispatch services have recently transferred from Navy Security to the Cleveland National Forest.
<b>Traffic Safety</b>	Accidents		Very few accidents occurred over the past five years, but speeding regularly occurs in the park.
<b>Safety Incidents and Injuries</b>	Number of incidents		Very few incidents or injuries are reported.
	Staff trained in First Aid and CPR, AEDs on site		CABR purchased CPR training equipment in FY11 and the majority of federal staff is now certified. The park will extend CPR training to volunteers. Three AEDs are located in the park: at the lighthouse, Visitor Center, and one in a Law Enforcement vehicle.
	EMT access and response		EMTs are stationed at the Navy fire station (topside barracks), 1.5 miles from the park entrance.
	Mutual response (fire, LE)		No current Memorandum of Understanding with Fed Fire exists.

## Partnerships



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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Volunteers</b>	- Number and hours - Turnover		In FY10 114 volunteers logged 5,000 hours. In FY11, 144 volunteers logged 7,122 hours. Volunteer turnover is very low.

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Partnerships	Cooperative Association (Cabrillo National Monument Foundation)		CNMF provided financial support of \$41,624 in FY11 which was an increase from FY10, but support for FY12 is projected at less than \$20,000 and the CNMF Board has informed the park that support will continue to decrease over the next several years. CNMF staffs the Cabrillo Store and holds membership-based special events. There were 275 members in 2011, down from peak membership of 300.
	Number of official and unofficial partnerships		The park has an official partnership with the Maritime Museum ( <i>San Salvador</i> ) and is exploring additional partnerships with other institutions.
Park Identity	Special use permits		Approximately 120 special use permits were granted in FY11, mostly for weddings and re-enlistment ceremonies. Several were for car commercials. An annual half-marathon and triathlon run through the park.
	Employee satisfaction		Most employees are satisfied with CABR, but they are genuinely concerned that broader NPS career paths and educational opportunities are limited or closed to them. Fluctuating hiring practices and human resource requirements leave many people uncertain about their tenure with NPS.

## 2.4. Park Infrastructure

### Overall Facility Condition Index



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The National Park Service uses a facility condition index (FCI) to indicate the condition of its facilities and infrastructure. FCI is the cost of repairing an asset, such as a building, road, trail, or water system, divided by the cost of replacing it. The lower the FCI number, the better the condition of the asset. The overall FCI for 63 assets at Cabrillo National Monument for FY12 was 0.061, which is considered Good based on industry and NPS standards. The table below summarizes the number of assets at CABR within each industry-standard asset category and the mean FCI on October 1, 2012, compared to October 1, 2008, to determine trends in condition. For additional information about how park managers use information about the condition of facilities and infrastructure to make decisions about the efficient use of funding for maintenance and restoration activities at the park, [Click Here](#).

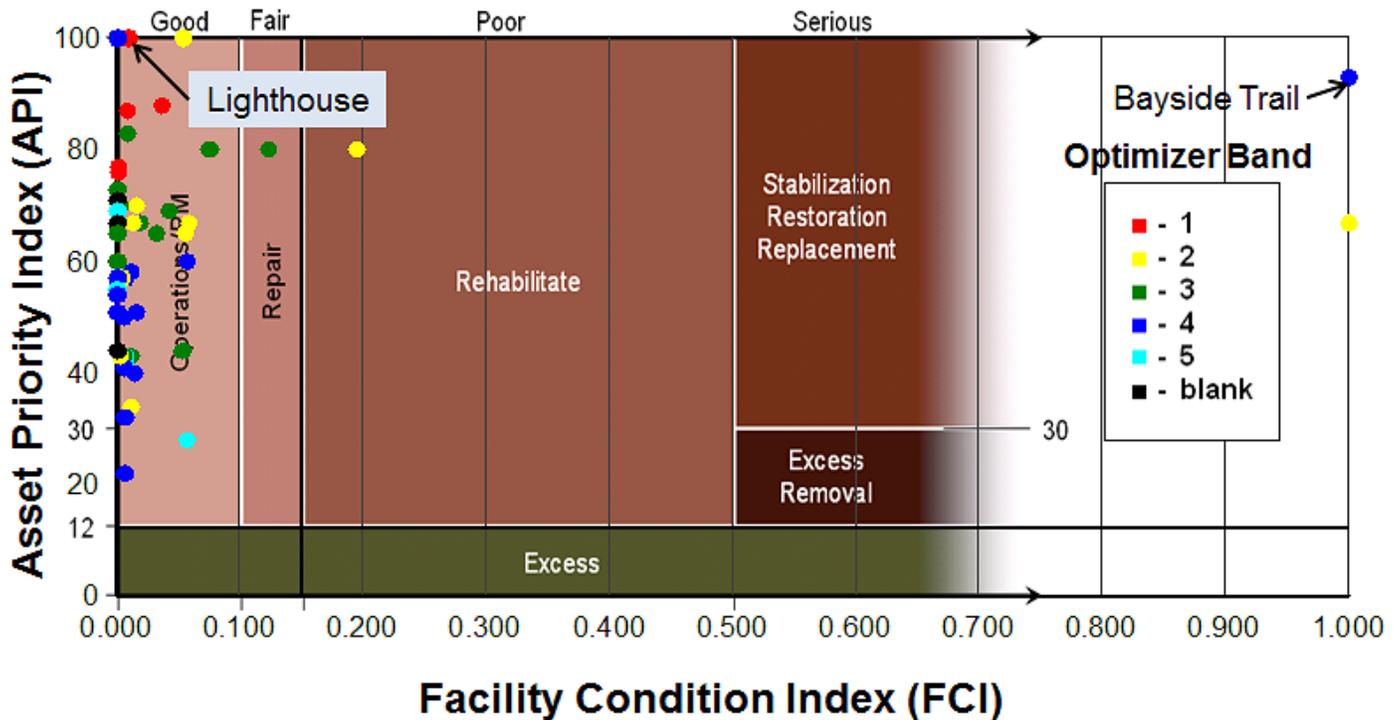
Asset Category	Number of Assets 2008 / 2012	FCI 2008 / 2012	Condition Status/Trend	Rationale
Buildings	33 / 17	0.034 / 0.015		Three new buildings were added recently; one to house the museum collection, another for Law Enforcement offices, and a vault toilet building at the Tidepool Parking Lot.
Trails	6 / 6	0.435 / 0.267		Two major landslides along Bayside Trail in 2005 caused by heavy rain have undercut the trail, near Searchlight 18.
Waste Water Systems	1 / 1	0.767 / 0.000		The Cabrillo sewage lift station was retrofitted in 2011 with new pumps, control panel, floats and electrical feed.
Paved Roads, Parking Areas, Bridges, Tunnels	11 / 11	0.093 / 0.107		The tidepool parking area needs grading improvements for accessibility, and expansion of footprint for safe school bus access, loading/unloading students, and turnaround.

All Others	10 / 27	0.150 / 0.006		This category includes Cabrillo’s historic coastal defense structures, photovoltaic arrays, and maintained landscapes.
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The condition of the buildings and other infrastructure assets at each park is determined by regular facility inspections, or “condition assessments,” including daily informal inspections and formal yearly inspections. Deficiencies identified from these assessments are documented in the NPS Facility Management Software System and the cost for each repair determined. Repairs that cannot be completed within the year count against the condition of a structure. The total cost of these deferred repairs divided by the total cost to replace the structure results in the FCI, with values between 0 and 1 (the lower the decimal number, the better the condition). The FCI is assigned a condition category of Good, Fair, Poor, or Serious based on industry and NPS standards. Deferred maintenance projects that require additional funding are identified based on FCI. Planned preventive maintenance on critical components occurs during the year, using a park’s base budget.

Another important facilities management planning tool used at a park is the Asset Priority Index (API). It identifies the importance of the various infrastructure components at a park. The API is determined using five criteria, and is calculated out of 100 possible points. The criteria are weighted based on their importance to NPS core priorities. They are distinct to ensure that each aspect of the asset is measured independently. As a result, most assets will not rate high in every category.

The scatterplot (below) for 2012 shows the FCI for each of the infrastructure asset types at Cabrillo. It plots buildings, trails, roads, parking areas, and other infrastructure assets against its Asset Priority Index (API). Park managers and maintenance staff use the FCI and API data for each park asset to focus on preventive maintenance and repairs to facilities that are most critical to their parks. The Old Point Lighthouse, as an example, has an Asset Priority Index of 100 because it is critical to the purpose and significance of the park, and it therefore receives priority for use of park base funds for routine maintenance and scheduled replacement of components. The Bayside Trail is a high-priority asset for the park, but its condition falls in the “serious” category because of heavy rains that washed out sections of the trail. The park currently does not have enough funding to repair the trail while also maintaining other high-priority assets, and therefore the repair costs must be deferred until such time as funding becomes available.



Optimizer bands—the color of the dots in the scatterplot—are assigned to each facility or asset as a tool to prioritize use of limited funding to maintain park infrastructure. Optimizer Band 1 includes those assets with the highest maintenance priorities. These assets are most important to the park—often linked to the park’s enabling legislation or have high visitor use—and usually are in the best condition. Band 1 assets receive the highest percentage of base funding for routine operations, preventive maintenance, and recurring maintenance to keep them in good condition with proactive, planned maintenance. These assets are important to park operations, but because fewer park base dollars are available after maintaining Band 1 assets, Band 2 assets receive a lesser percentage of remaining funds. Assets in the lower priority bands may only receive preventive maintenance for the most critical components or may require

special projects or partner funding to maintain them. For additional information about optimizer bands and how park managers use them to make decisions about the efficient use of funding for maintenance and restoration activities at the park, [click here](#).

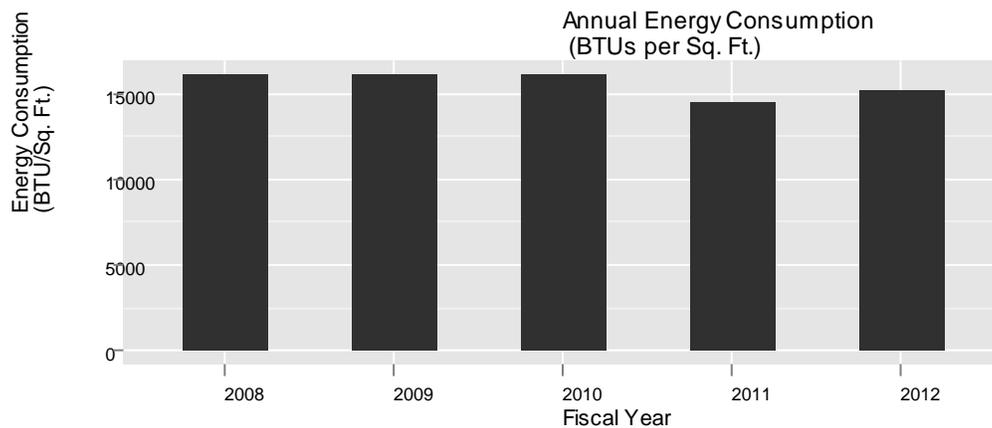
## Energy Consumption



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The production of energy to heat, cool, and illuminate buildings and to operate water utility systems is one of the largest contributors to greenhouse gas emissions in the United States. The National Park Service is committed to improving facility energy performance and increasing its reliance on renewable energy sources. The National Park Service has a goal to reduce Servicewide building energy consumption per square foot of building space by 35% by 2016 from the baseline set in 2003 ([NPS Green Parks Plan 2012](#)).

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Energy Consumption	BTUs per gross square footage of buildings		Energy consumption (BTUs per gross square footage of buildings) at the park in 2012 was 2.8% lower than the average for the previous four years (Source: NPS Annual Energy Report).



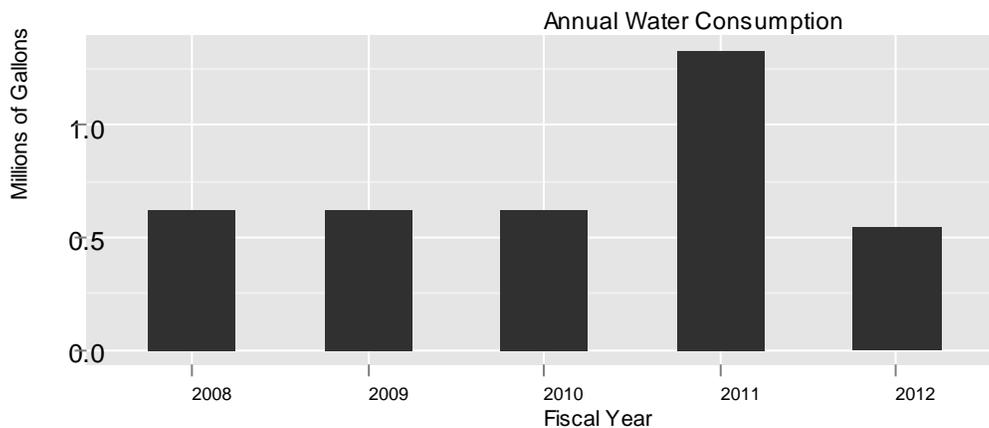
## Water Consumption



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The national and global supply of fresh water has diminished in recent decades, and this trend is likely to continue due to drought and other climatic changes. To contribute to the responsible use of freshwater supplies, encourage groundwater recharge, and protect water quality, the National Park Service is improving its efforts to conserve water, reuse gray water, and capture rainwater, and has set a goal to reduce non-irrigation potable water use intensity by 30% by 2020 from the baseline set in 2007 ([NPS Green Parks Plan 2012](#)).

Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
Water Consumption	Millions of gallons		Water consumption at the park in 2012 was 32.7% lower than the four-year average for 2008-2011 (Source: NPS Annual Energy Report). FY 2011 was a drought year at Cabrillo (see <a href="#">Drought Severity graph</a> in internet version).



## Park Carbon Footprint

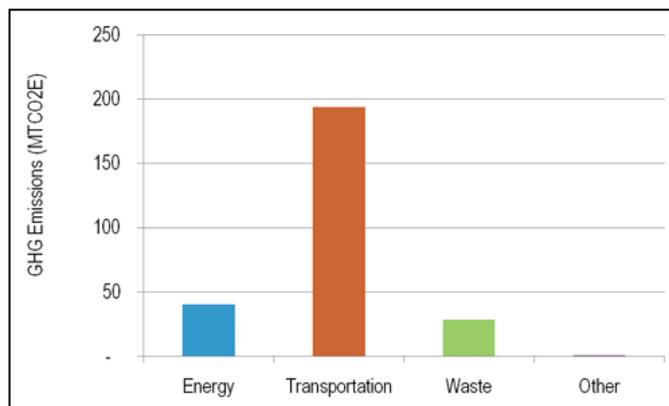


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Indicators of Condition	Specific Measures	Condition Status/Trend	Rationale
<b>Greenhouse gas Emissions</b>	Metric tons of CO <sub>2</sub> equivalent (MTCO <sub>2</sub> E)		The largest emission sector for Cabrillo National Monument is transportation, totaling 194 MTCO <sub>2</sub> E. The park currently has seven neighborhood electric vehicles (NEV) in use.

## Profile – Park Carbon Footprint

Carbon Footprint is measured by greenhouse gas (GHG) emissions resulting from the combustion of fossil fuels for transportation and energy (e.g., boilers, electricity generation), the decomposition of waste and other organic matter, and the volatilization or release of gases from various other sources (e.g., fertilizers and refrigerants). A decreasing carbon footprint indicates the park is striving to reduce its impact on the climate change through mitigation efforts. In 2008, the baseline GHG emissions were set within Cabrillo National Monument and totaled 263 metric tons of carbon dioxide equivalent (MTCO<sub>2</sub>E). To put this in perspective, a typical U.S. single family home produces approximately 12 MTCO<sub>2</sub> per year ([U.S. EPA 2011](#)). Thus, the emissions from park operations are roughly equivalent to the emissions from the energy use of 22 households each year. The largest emission sector for Cabrillo National Monument is transportation, which totals 194 MTCO<sub>2</sub>E. Cabrillo National Monument currently has seven neighborhood electric vehicles (NEV) in use within the monument. Cabrillo National Monument has committed to:



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- Educate Park employees and visitors about the importance of reducing greenhouse gas emissions and mitigating climate change.
- Replace old equipment with new energy efficient equipment.
- Replace light bulbs with energy efficient florescent bulbs.
- Increase the number of solar panels on the visitor center and maintenance building.
- Install energy efficient double pane windows with reflective film to reduce solar heating.
- Place more recycling receptacles throughout the park.
- Install Photovoltaic lighting along the sidewalks throughout the park.
- Continue to purchase and encourage the use of electric vehicles.
- Replace large utility vehicles with smaller more efficient vehicles.
- Install waterless urinals throughout the park.

To read more about what we are doing at Cabrillo National Monument about Climate Change, check out our [Action Plan](#)!

# Chapter 3. Summary of Stewardship Activities and Accomplishments to Maintain or Improve Resource Condition

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The list below provides examples of stewardship activities and accomplishments by park staff and partners to maintain or improve the condition of priority park resources and values for this and future generations:

## Natural Resources

- The Tidepool Protection, Education and Restoration Program (TPERP) is a very successful collaboration between park staff and the Volunteers-In-Parks (VIP) Program to protect the fragile intertidal system and to provide school children and other park visitors with high-quality, park-based learning experiences. Participants are involved in monitoring of the tidepools and shorebirds, as well as protecting park resources and educating visitors.
- The rocky intertidal monitoring program is 21 years old and has produced valuable long-term scientific data (e.g., [Roy et al. 2003](#), [Becker 2006](#), [Sagarin et al. 2007](#), Pister et al. *in prep*).
- The herpetological monitoring program has been conducted steadily for the past 16 years.
- A new monitoring protocol for vegetation and non-native species was developed in 2011.
- The removal of invasive and non-native plants over the past two decades has restored several acres of coastal sage scrub. Very few large patches of weeds remain.
- A map of all vegetation types on the Point Loma peninsula was completed in 2011.
- The Cabrillo Oil Spill Response Plan ([Pister et al. 2009](#)) was added to the [San Diego Area Contingency Plan \(ACP\)](#) in 2011. The ACP is the plan followed by response agencies and personnel in the event of an oil spill.

## Cultural Resources

- The Museum Storage Building—a state-of-the-art facility—was built to protect historical artifacts.
- The park receives regular cyclic funding for repairs of historic coastal defense structures.
- Park staff submitted funding requests for an administrative history, archeological assessments, and other cultural landscape-related projects.

## Visitor Experience

- The park has partnered with the Maritime Museum of San Diego in their building of a replica of the *San Salvador*, Cabrillo's flagship, at Spanish Landing. The Park Education Staff and the Maritime Museum of San Diego staff are developing curriculum-based programs to be presented to third through fifth graders. Park staff and volunteers wearing clothing representative of the 1540s provide interpretation of the history of Cabrillo's voyage of discovery to visitors at the construction site. A web cam provides real-time still images of the progress of the building of the *San Salvador* to our visitor center.
- The Sea-to-Shining Sea Program allows virtual field trips to the rocky intertidal habitat and lighthouse and is viewed in classrooms throughout California and the world. Students can have real-time interaction with park rangers that they can see and ask questions about the tide-pools, lighthouse, and geologic history.
- The Kelp Forest and Whale Watch Overlook has been remodeled with new signs and displays. Visitors can relax on new benches under canopies that look like sails.
- The Parks and Open Spaces Day annual event has participation from county, state, local organizations throughout southern California; each year, this event has more participants and gains in popularity.
- Cabrillo National Monument has established a volunteer committee and associated charter, providing a vehicle for stewardship and buy-in for our volunteers.
- Our education program provides curriculum-based school programs on five topics. Grades 2 through 5 are taught about the "Life in the Coastal Sage Scrub", "Kumeyaay Supermarket", "Rocky Intertidal", "Lighthouse", and our most popular, "Cabrillo and the Age of Exploration."
- The Port of San Diego is now in the planning stages of establishing a shuttle service dedicated to servicing the downtown area of San Diego with the Park and stops in-between.
- Photographic events and Art shows were new for FY11 and FY12. Local photographers and artists participated in these events, and planning has begun for events next year.
- The auditorium has been retrofitted to show the park's three movies automatically throughout the day.

## Park Infrastructure

- Restoration of the Old Point Loma Lighthouse was completed with repairs made to the roof, new weather sealing, and repainted railings.
- Repairs were made to the Assistant Keeper’s Quarters adjacent to the lighthouse, and the Fresnel lens was relocated to that building so that visitors can view it up close and learn about its operation.
- To reduce greenhouse gas emissions and to save energy, the park recently installed two rooftop solar arrays, and replaced several gasoline-powered vehicles with electric vehicles.
- Cabrillo became a “trash-free park” in November, 2010, by removing 95% of its garbage and recycling containers. This has resulted in a significant decrease in the park’s contribution to landfill, and associated carbon footprint related to hauling and processing. Other benefits include reducing pests, removing an unnatural food source for wildlife, and reducing litter. It encourages reuse and recycling practices for the public, and results in a cost savings which allows the park to make more productive use of available staff and funding.
- A Joint Fire Management Plan with Navy Base Point Loma was signed in 2006 ([National Park Service 2006](#)) and will be revised in 2012. It was the first joint fire plan between the Department of the Interior and the Department of Defense.

# Chapter 4. Key Issues for Consideration in Management Planning

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## Natural and Cultural Resources

The rocky intertidal habitat at Cabrillo represents a nexus of several management planning issues. It is one of the most popular features of the park, receiving more than 150,000 visitors per year (Phillips et al. 2013). Twenty years of long-term monitoring has identified many changes during the past two decades ([Becker 2006](#), Pister et al. *in prep*). Some of the changes are likely due to visitor impacts, and others are likely due to factors operating outside the park’s immediate control. Cabrillo has taken several successful steps to limit the impacts due to visitors, most notably the Tidepool Protection, Education and Restoration Program (TPERP). However, intertidal life is not adapted to withstand high levels of visitation and determining an appropriate number of visitors to the habitat without impairing it is a key planning issue for the park. The long-term monitoring program has identified several ecological changes requiring further research to understand and inform management actions. Investigating these research questions is currently beyond the park’s capabilities. The establishment of an interpretation center or facility focusing on intertidal and ocean themes and located near the tidepools is included in the park’s Long Range Interpretive Plan (National Park Service et al. 2009) and remains a key goal for Cabrillo. In January of 2012, the State of California established the Cabrillo State Marine Reserve, a no-take marine protected area, around the park. Enforcement on the water, however, is lacking and illegal commercial lobster fishing is currently a problem. Due to NPS budget constraints, funds are not available that would provide enforcement and protection measures of the intertidal and coastal ocean resources.

Several other areas of Cabrillo receive varying levels of visitation (e.g. the Lighthouse, the Military History Exhibit, the Visitor Center) but park staff does not currently possess accurate estimates of how many people visit these features, or when. Park staff recognizes that measuring visitation in different areas and at different times (e.g. weekdays versus weekends) would help us deploy resources more efficiently (particularly staff and interpretive elements) and improve visitor experiences in general.

Non-native species, in particular weedy plants, remain a constant threat to the animals and plants of the Coastal Sage Scrub. The park plans to be “Weed Free” by 2016. However, it will take a lot of effort on many fronts to get there. The current Vegetation Management Plan ([Cabrillo National Monument 1992](#)) was last updated in 1992 and is no longer in line with NPS policies (for example, it tasks park staff with maintaining *Myoporum laetum* and other exotic landscaping plants known to be detrimental to native park species). An updated plan is a high priority.

Many of the natural and cultural resources outside of Cabrillo on the Point Loma peninsula are in relatively good shape. Cabrillo National Monument is continuously looking for ways to partner with the other four agencies on the Point Loma peninsula (U.S. Navy, U.S. Coast Guard, Department of Veterans Affairs, and the City of San Diego) to improve the management of both impacted and unimpacted natural and cultural resources. The park is always looking for ways to improve visitor experiences in conjunction with the history and unique relationships with our neighbors. For example, the park would like to take a more active role in interpreting the history of the Lighthouse Service and the Pelican Point Lighthouse, which replaced the Point Loma Lighthouse in 1891 and is

currently operated by the U.S. Coast Guard on property adjacent to Cabrillo. The park also needs to establish a working group with our neighbors and other agencies to discuss the future of the Fort Rosecrans and remaining historic structures.

Overshadowing all our concerns for the natural resources are the potential consequences of rapid climate change and ocean acidification. Continued increases in air and ocean temperatures along with predicted changes in precipitation, relative humidity, storm frequency and storm intensity will bring about great changes in the ecological communities we know and understand today (Smith et al. 2004, Christensen 2007, IPCC 2007, Cayan et al. 2008). Mediterranean-type ecosystems (like southern California) are among those especially likely to be affected by a reduction in rainfall (IPCC 2007). Ocean acidification is also expected to affect shell bearing and calcifying organisms of the rocky intertidal and kelp forest ecosystems (Wootton et al. 2008, Doney et al. 2009). However, with the likely extirpation of some species and the new introductions of others, the full ramifications of those changes (and how to plan for them) remain unpredictable with the current state of the science (Harley et al. 2006, Hoegh-Guldberg and Bruno 2010).

The 19 coastal defense structures in the park represent a fascinating glimpse into the country's mentality and an accelerating arms race between land, sea and air armament during WWI and WWII, and yet most of them are closed to the public. Although some structures are very difficult to access, the park is beginning to plan how to open some of them to the public.

### **Visitor Services**

The National Park Service as an agency is trying to improve connections with demographic groups that visit national parks infrequently. Latin American and urban citizens are two of these groups living in abundance within easy driving distance of Cabrillo National Monument. The park plans to take advantage of its location within metropolitan San Diego to increase engagement with these audiences in particular.

Public transportation to the park has decreased over the last several years. In addition, one of the greatest challenges schools face is transporting students on field trips. Cabrillo is planning on enhancing both public and student transportation to the park through partnerships. The Port of San Diego has received a Parks in Transit Grant which will allow a sustainable transportation service from the San Diego Convention Center to the park. At the same time, the park is using the internet and distance learning programs to inform students about the park's resources within their own classrooms.

The Cabrillo National Monument centennial is in 2013, and the National Park Service centennial is in 2016. In order to engage the public during these significant events, Cabrillo National Monument intends to expand the educational and interpretative themes of Sixteenth Century Exploration, the Lighthouse Period, and WWI and WWII.

Cabrillo National Monument and Channel Islands National Park are currently working on a Sister-Park Agreement with Guadalupe Island Reserve off the coast of Baja, Mexico. Cabrillo is also a border park with Mexico, and we continue to support the Community of Ensenada in interpreting Juan Rodriguez Cabrillo's Landing at San Mateo (Ensenada).

Park staff plans to take advantage of local training opportunities whenever possible. Park managers are also searching for ways to improve staff morale. Increased travel restrictions leave fewer opportunities for professional enrichment, edification, and collaboration with other NPS staff, which ultimately affects park operations. The current economic crisis, annual budget uncertainty, and changes in human resources hiring practices and requirements are eroding staff morale. Costs of living in San Diego are high and increasing, but salaries have been frozen and park staff does not have access to many affordable services available at many other parks, such as child care or park housing.

### **Park Infrastructure**

The Bayside Trail is a historic road that connects visitors to healthy coastal sage scrub, a superb eastern view of San Diego harbor, and potentially to coastal defense structures in the future, but the trail has been undercut by landslides. Current repair estimates are approximately \$1 Million. A planning strategy for the use of Recreation Fee 80% funds for FY 13 and FY 14 will address this issue and allow repair of the trail. The challenges in dealing with maintaining roads and trails are being met with a combination of regular cyclic funding, five-year planning strategies and the use of volunteers so that visitors can experience the full breadth of resources at Cabrillo.

Cabrillo currently obtains about one quarter of its energy needs from solar panels and uses seven electrical vehicles within the park. Our greatest source of carbon emissions, however, is from vehicle use and transportation. Park staff would like to further reduce the use of fossil fuels in the management of the park. However, maintenance costs to Neighborhood Electric Vehicles (NEVs) are equal to or greater than the cost of using gasoline vehicles. The park will continue its commitment to the use of electric vehicles, and seek funding to further enhance its electric fleet.

Rehabilitation of the Tidepool Parking Lot remains a challenge to park management. Reducing the grade of the lot, adding a bus turnaround, sidewalks, and trail improvements are all part of the approved rehabilitation plan. Portions of the plan have been

implemented, including a vault toilet and new interpretive kiosk. Estimates for the remaining work are over one million dollars. A planning strategy to use limited Recreation Fee 80% funds is being developed for this project.

Current office space is inadequate for staff needs. At times, crowded offices inhibit productive office work. In addition, current office space (and some visitor infrastructure as well) is not compliant with the American Disabilities Act and was clearly designed for an all-male staff.

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See [\[link to web version\]](#) for a collection of references to documents and data sets upon which the assessments in this State of the Park report are based. References for a few of the key documents cited in this report are as follows:

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**See Also:**

[Collection of General References](#)

[Collection of Natural Resource-Related References](#)

[Collection of Cultural Resource-Related References](#)

[Collection of Visitor Experience-Related References](#)

# Glossary

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See the [State of the Parks home page](#) for links to a complete glossary of terms used in State of the Park reports. Definitions of key terms used in this report are as follows:

Americans with Disabilities Act (ADA)	Law enacted by the federal government that includes provisions to remove barriers that limit a disabled person’s ability to engage in normal daily activity in the physical, public environment.
Archeological Sites Management Information System (ASMIS)	The National Park Service's standardized database for the basic registration and management of park prehistoric and historical archeological resources. ASMIS site records contain data on condition, threats and disturbances, site location, date of site discovery and documentation, description, proposed treatments, and management actions for known park archeological sites. It serves as a tool to support improved archeological resources preservation, protection, planning, and decision-making by parks, centers, regional offices, and the national program offices.
Baseline Documentation	Baseline documentation records the physical condition of a structure, object, or landscape at a specific point in time. A baseline provides a starting point against which future changes can be measured.
Carbon Footprint	Carbon footprint is generally defined as the total set of greenhouse gas emissions caused by an organization, event, product or person.
Climate Friendly Park	The NPS <a href="#">Climate Friendly Park</a> designation requires meeting three milestones: completing an application; completing a comprehensive greenhouse gas (GHG) inventory; and completing a Climate Action Plan, which is the actions, policies, programs, and measures a park will put into place to reduce its GHG emissions.
Cultural Landscape Inventory (CLI)	A Cultural Landscapes Inventory describes historically significant landscapes within a park. The inventory identifies and documents each landscape’s location, size, physical development, condition, characteristics, and features, as well as other information useful to park management.
Curation	National parks are the stewards of numerous types of objects, field notes, publications, maps, artifacts, photographs, and more. The assemblage of these materials comprises a museum collection. Curation is the process of managing, preserving, and safeguarding a collection according to professional museum and archival practices.
Exotic Plant Management Team (EPMT)	The NPS Exotic Plant Management Team Program supports 16 Exotic Plant Management Teams working in over 225 park units. EPMTs are led by individuals with specialized knowledge and experience in invasive plant management and control. Each field-based team operates over a wide geographic area and serves multiple parks.
Facility Condition Index (FCI)	FCI is the cost of repairing an asset (e.g., a building, road, bridge, or trail) divided by the cost of replacing it. The lower the FCI number, the better the condition of the resource.

Foundation Document	A park Foundation Document summarizes a park’s purpose, significance, resources and values, primary interpretive themes, and special mandates. The statement identifies a park’s unique characteristics and what is most important about a park. The foundation statement is fundamental to guiding park management and is an important component of a park’s General Management Plan.
Fundamental and Other Important Resources and Values	Fundamental resources and values are the particular systems, processes, experiences, scenery, sounds, and other features that are key to achieving the park’s purposes and maintaining its significance. Other important resources and values are those attributes that are determined to be particularly important to park management and planning, although they are not central to the park’s purpose and significance. These priority resources are identified in the park Foundation Document and/or General Management Plan. The short-cut name that will be used for this will be Priority Resources.
Historic Integrity	Historic Integrity is the assemblage of physical values of a site, building, structure or object and is a key element in assessing historical value and significance. The assessment of integrity is required to determine the eligibility of a property for listing in the National Register.
Indicator of Condition	A selected subset of components or elements of a Priority Resource that are particularly “information rich” and that represent or “indicate” the overall condition of the Priority Resource. There may be one or several Indicators of Condition for a particular Priority Resource.
Interpretation	Interpretation is the explanation of the major features and significance of a park to visitors. Interpretation can include field trips, presentations, exhibits, and publications, as well as informal conversations with park visitors. A key feature of successful interpretation is allowing a person to form his or her own personal connection with the meaning and significance inherent in a resource.
Invasive Species	Invasive species are non-indigenous (or non-native) plants or animals that can spread widely and cause harm to an area, habitat or bioregion. Invasive species can dominate a region or habitat, out-compete native or beneficial species, and threaten biological diversity.
List of Classified Structures (LCS)	LCS is an inventory system that records and tracks the condition of the approximately 27,000 historic structures listed in the National Register of Historic Places that are the responsibility of NPS.
Mediterranean Coast Network (MEDN)	One of 32 I&M networks established as part of the NPS <a href="#">Inventory and Monitoring Program</a> . The <a href="#">Mediterranean Coast Network</a> includes Cabrillo National Monument, Channel Islands National Park, and Santa Monica National Recreation Area.
Mission 66	Mission 66 was a ten-year program, begun in 1955, devoted to expanding and improving NPS infrastructure (including visitor facilities, roads, utilities, and park employee housing) by 1966, the 50 <sup>th</sup> anniversary of the establishment of NPS.
Museum Collection	NPS is the steward of the largest network of museums in the United States. NPS museum collections document American, tribal, and ethnic histories; park cultural and natural resources; park histories; and other aspects of human experience. Collections are managed by professionally-trained NPS staff, who ensure long-term maintenance of collections in specialized facilities.
Natural Resource Condition Assessment (NRCA)	A synthesis of existing scientific data and knowledge, from multiple sources, that helps answer the question: what are current conditions of important park natural resources? NRCA’s provide a mix of new insights and useful scientific data about current park resource conditions and factors influencing those conditions. NRCA’s have practical value to park managers and help them conduct formal planning and develop strategies on how to best protect or restore park resources.

Priority Resource or Value	This term refers to the Fundamental and Other Important Resources and Values of a park. These can include natural, cultural, and historic resources as well as opportunities for learning, discovery and enjoyment. Priority Resources or Values include features that have been identified in park Foundation Documents, as well as other park assets or values that have been developed or recognized over the course of park operations. Priority Resources or Values warrant primary consideration during park planning and management because they are critical to a park's purpose and significance.
Resource Management	The term "resources" in NPS encompasses the many natural, cultural, or historical features and assets associated with parks. Resource management includes the knowledge, understanding, and long-term stewardship and preservation of these resources.
Specific Measure of Condition	One or more specific measurements used to quantify or qualitatively evaluate the condition of an Indicator at a particular place and time. There may be one or more Specific Measure of Condition for each Indicator of Condition.
Visitor Resource Protection (VRP)	Includes, among other responsibilities, protecting and preserving park natural and cultural resources, enforcing laws that protect people and the parks, fire management, search and rescue, managing large-scale incidents, and on-the-ground customer service.