



Park News

► Water Restrictions in Effect

Please help us conserve water during your visit. In March, the state of Oregon declared a drought emergency for our county. In 8 of the past 10 years, the park has received less snow than normal. Last winter's snow total was 15 feet below average. While you're here, please take short showers, don't run the tap, and reuse towels and sheets if staying overnight in park lodging. Thanks for your help!

► Leave Your Drone at Home

Operating remote-controlled aircraft in the park is prohibited. Please report violators to the nearest employee.

► Road Work: 30-Minute Delays are Possible

Road construction might delay your trip through the park this summer. The Federal Highway Administration is undertaking a \$18 million rehabilitation of 10.7 miles (17.2 km) of the park's historic Rim Drive. Built in the 1930s, the road is badly in need of repair. Decades of harsh weather and the erosion of underlying soils have destabilized its shoulders and retaining walls. Be prepared for delays of up to 30 minutes. Thanks for your patience!

► East Rim Drive will be Vehicle-Free on Sept. 8 & 15

On two Saturdays this September, motor vehicles will not be allowed on the park's East Rim Drive. Bicyclists and pedestrians will have an opportunity to enjoy 24 miles (39 km) of scenic roadway without vehicle noise and traffic. Check the park's website (www.nps.gov/crla) for details.

Welcome!



You've arrived at one of the most spectacular and scenic of all the national parks in the United States if not the world! We hope you will take time to savor the experience and discover the

treasures—beyond just the overlooks—that make this such a special place.

We want you to return home with great pictures and memories, but to do that you must experience the park safely and respect the natural landscape and hazards therein. Please read this paper then ask a ranger if you need help. We're here to serve!

Craig Ackerman
Superintendent

Discovering Crater Lake

12 Great Ways to Enjoy Your Stay

The first European-American to see Crater Lake was lucky to survive the experience. On June 12, 1853, gold prospector John Wesley Hillman was riding his mule up a long, sloping mountain. He was lost, tired, and not paying attention to the terrain ahead. Suddenly, his mule stopped. Hillman sat up and found himself on the edge of a cliff, gazing in astonishment at "the bluest and most beautiful body of water I had ever seen." He added: "If I had been riding a blind mule, I firmly believe I would have ridden over the edge to death and destruction."

While mules—no matter how sharp their eyesight—are no longer permitted to approach the rim of Crater Lake, there are many other ways we can discover the park today and experience some of the surprise, wonder, and delight felt by that lost prospector 165 years ago. Here are 12 recommendations:



John Wesley Hillman

Watch the Park Film

Explore the park's violent past and its present tranquility in this 22-minute film, shown on the hour and half-hour at the Steel Visitor Center at Park Headquarters.

Drive Around the Lake

Rim Drive is a 33-mile (53-km) road that encircles Crater Lake. More than 30 pullouts offer dramatic views of the park's volcanic scenery. Allow 2 to 3 hours (*see page 5*).

Attend a Ranger Program

Discover the wonders of Crater Lake with those who know the park best. Talks, walks, kids programs, boat tours, and trolley tours are offered daily (*see page 3*).

Hike a Trail

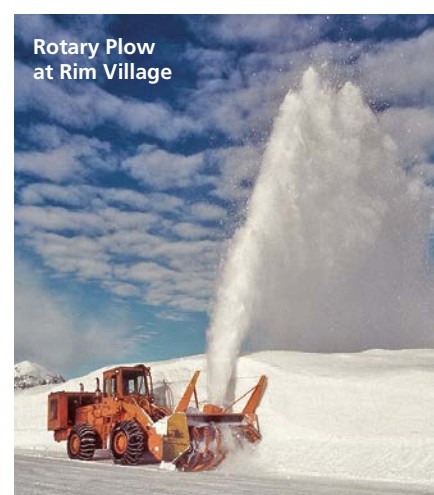
From easy walks to challenging hikes, the park has something for everyone. Explore pristine forests, flower-filled meadows, and rocky peaks (*see page 4*).

Find the Phantom Ship

Anchored near the lake's south shore is an island that seems to be sailing away. To see it, hike to Sun Notch or drive to the viewpoint named in its honor (*see page 5*).

Photograph the Pinnacles

Formed during the same eruption that gave birth to the lake, these colorful volcanic spires are tucked away in the park's southeast corner (*see page 5*).



Rotary Plow
at Rim Village

Tour Crater Lake Lodge

For a glimpse into an earlier era, check out the history exhibits—and walk through the Great Hall—of Crater Lake Lodge, renovated in the 1990s but first opened in 1915 (*see page 2*).

Visit the Sinnott Overlook

With panoramic views and fascinating exhibits, this is the place to learn about the park's geologic story and history of scientific investigation (*see page 2*).

Have a Picnic

The viewpoints and picnic areas along the Rim Drive are perfect for outdoor eating (*see page 5*). Stop by the Rim Village Café for grab-and-go sandwiches, salads, and snacks.

Touch the Water

The trail to the lake shore is steep and sometimes crowded, but the water at the bottom is some of the world's purest. Swim, fish, or simply dangle your toes (*see page 3*).

Savor the Sunset

Sunsets in the park can be spectacular. Join a ranger for a hike up Watchman Peak (*see page 3*) or pick a private viewpoint on the East Rim Drive.

View the Milky Way

On moonless nights, the park offers some of the darkest night skies in America. Look up to see meteors, satellites, planets, and the starry arms of our galaxy.

When is the Park Open?

Crater Lake National Park is open year-round, 24 hours a day. Some roads, trails, and facilities, however, are closed seasonally due to snow. The park's North Entrance Road and Rim Drive close for the season on November 1 (or earlier if there is significant snowfall).

Crews start plowing these roads in April, but opening dates vary (depending on winter snow totals, spring weather conditions, and whether any plows break down). The North Entrance and West Rim open sometime between mid-May and late June. The East Rim opens between mid-June and late July. Highway 62 and the road to Rim Village are open year-round.

- 2... Camping, Lodging, Food
- 3... Ranger Programs
- 4... Hiking Trails
- 5... Driving Map
- 6... In the News: Bull Trout
- 7... Feature Article: Lake Level
- 8... Climate Chart

Look Inside! →

Park Profile

Crater Lake National Park protects the deepest lake in the United States. Fed by rain and snow (but no rivers or streams), the lake is considered to be the cleanest large body of water in the world. The water is exceptional for its clarity and intense blue color.

The lake rests inside a caldera formed approximately 7,700 years ago when a 12,000-foot-tall (3,600-meter) volcano collapsed following a major eruption. The eruption may have been the largest in North America in the past 640,000 years. Later eruptions formed Wizard Island, a cinder cone near the southwest shore.

The park is central to the cultural traditions of local American Indian tribes, whose ancestors witnessed the lake's formation.

Today, old-growth forests blanket the volcano's outer slopes, harboring a wide variety of plants and animals, including several rare species. The park provides unique opportunities for scientific study and public enjoyment.

- Park established: 1902
- Size: 183,000 acres (74,060 hectares)
- Number of visitors last year: 712,000
- Lake depth: 1,943 feet (592 meters)
- Lake width: 4.5 to 6 miles (7 to 10 km)
- Annual snowfall: 43 feet (13 meters)
- Last time the lake froze over: 1949



Artist Paul Rockwood's conception of Mount Mazama, the volcano that collapsed to form Crater Lake. If you gathered up the ash from Mount Mazama's catastrophic eruption and spread it evenly across the state of Oregon, it would form a layer 8 inches (20 cm) thick.



Bicyclist on East Rim Drive



Rim Visitor Center



Wizard Island



Exhibits at the Sinnott Overlook



National Park Service
U.S. Dept. of the Interior

Crater Lake Visitor Guide Summer/Fall 2018

This is the official trip-planner and newspaper of Crater Lake National Park. It is published twice a year and funded by the Crater Lake Natural History Association through sales made in the visitor center bookstores.

Park Phone: 541-594-3000
Website: www.nps.gov/crla
Mail: PO Box 7, Crater Lake, OR 97604
Email: craterlake@nps.gov

Accessibility

Except for the Sinnott Overlook, developed areas in the park are generally accessible to individuals with mobility impairments. Wheelchair-accessible paths include the Rim Village promenade and the Pinnacles Trail. The Godfrey Glen, Sun Notch, and Plaikni Falls trails are accessible to wheelchair users with assistance (see page 4). Multiple pullouts on Rim Drive have wheelchair-accessible wayside exhibits. Some ranger programs are accessible to people with limited mobility (see page 3). We are working hard to improve our level of accessibility for all park visitors. We welcome your comments.

ATMs

The Mazama Village Store and Rim Village Gift Shop have ATMs.

Drinking Water

Water faucets can be found at Rim Village, Mazama Village, and inside the Steel Visitor Center. Bottled water can be purchased at the top and bottom of the Cleetwood Cove Trail (when boat tours are operating).

Electric Vehicle Charging Station

A 24-hour charging station is located by the Annie Creek Gift Shop. It has one standard (J1772) connector and one Tesla connector.

Emergencies

Dial 911 to report any emergency, 24 hours a day. First aid is available at visitor centers and the ranger station at Park Headquarters.

Entrance Fee

From May through October, the park's entrance fee is \$25 per vehicle (\$15 per motorcycle), good for 7 days. The rate is higher for commercial vehicles. Your fees are put to work improving visitor services and facilities. Thank you for supporting your national parks!

Gasoline

Self-serve, unleaded

gas is available at the Mazama Village Store during business hours.

Internet

Wireless internet is free for guests of Crater Lake Lodge and The Cabins at Mazama Village. Public Wi-Fi is available at Crater Lake Lodge and the Annie Creek Restaurant for \$4 per hour or \$10 for 24 hours.

Lost & Found

Contact a ranger at either visitor center or call 541-594-3060.

Phones

Cell reception in the park is unreliable. It depends on your location and provider. Pay phones are located outside the Mazama Village Store and inside Crater Lake Lodge.

Picnic Areas

Picnic areas are found throughout the park (see page 5). The Rim Village picnic area has fire grates. Most picnic areas have vault toilets but no running water.

Post Office

A US Post Office is open Monday through Saturday in the Steel Visitor Center. Summer hours are 9:00 am–noon and 1:00–3:00 pm.

Recycling

Combination trash/recycling bins can be found at more than 20 locations in the park. Recycling is currently limited to aluminum cans and newspaper.

Restrooms

Restrooms with flush toilets and running water are located at Rim Village, Mazama Village, and in the Steel Visitor Center (9:00 am–5:00 pm). Vault toilets are located at most picnic areas, Watchman Overlook, Lost Creek Campground, the park's North and West entrances, and both ends of the Cleetwood Cove Trail (see map on page 5).

Showers & Laundry

Coin-operated showers and laundry machines are available at Mazama Campground.

Services & Facilities

Camping

The park has two campgrounds. Senior Pass and Access Pass holders are entitled to a 50% discount. Overnight parking elsewhere is not allowed, except by backcountry permit (see page 3). For a list of camping options outside the park, ask at a visitor center.

Mazama Campground (214 sites) is located 7 miles south of Rim Village near Highway 62. In 2018, it will likely be open June 1–September 30. All sites in June are available only on a first-come, first-served basis. For the rest of the summer, 75% of sites can be reserved in advance by calling 888-774-2728 or online at www.craterlakelodges.com. The other 25% remain first-come, first-served. In July and August, the campground often fills by mid-afternoon. The campground offers tent sites (\$22 per night) and RV sites (\$31). A few of the RV sites have electric hookups (\$36). A water hookup is available at the dump station. There are many pull-through sites; some can accommodate RVs as long as 50 feet (15 meters). Each site has a picnic table, fire ring, and food locker. Black bears are rarely seen, but campers should store all food in their locker or vehicle. The campground has drinking water, flush toilets, showers, and laundry facilities. A general store sells groceries, firewood, and gasoline. You can call the campground directly at 541-594-2255 ext. 3610. It's operated by the park's concessioner, Xanterra Travel Collection.

Lost Creek Campground (16 sites, tents only, \$5 per night) is located on the Pinnacles Road. In 2018, it will likely be open from July to mid-October. Water and flush toilets are not available at Lost Creek this year, and wood fires are not allowed. Campers should bring their own drinking water; portable toilets will be provided. The campground typically fills by mid-afternoon. Registration is self-service, and reservations are not taken. Each site has a picnic table and food locker. Payment can be made by check or exact cash.

Food & Dining

The **Rim Village Café** serves light fare including grab-and-go sandwiches, salads, beverages, and snacks.

- May 18–June 7 10:00 am–6:00 pm
- June 8–Sept. 3 9:00 am–8:00 pm
- Sept. 4–30 10:00 am–6:00 pm
- Oct. 1–Nov. 3 10:00 am–5:00 pm
- Nov. 4–Dec. 31 10:00 am–4:00 pm

The **Annie Creek Restaurant** in Mazama Village offers hearty breakfasts, burgers, a variety of entrees, and a soup & salad bar.

- May 25–Sept. 30
 - Breakfast 8:00 am*–10:30 am
 - Lunch 11:00 am–4:00 pm
 - Dinner 5:00 pm–8:00 pm**
- *7:00 am June 15–Sept. 3
- **9:00 pm June 15–Sept. 3

Crater Lake Lodge features fine dining in a casual atmosphere, with gourmet cuisine made from local ingredients. Reservations are recommended for dinner (541-594-2255 ext. 3217) but are not taken for breakfast or lunch. Appetizers, drinks, and desserts are also available from 3:00 pm until closing in the Great Hall and on the back patio.

- May 18–Oct. 14
 - Breakfast 7:00 am–10:00 am
 - Lunch 11:00 am–3:00 pm
 - Dinner 5:00 pm–9:00 pm*
- *9:30 pm June 8–Sept. 9

The **Mazama Village Store** sells groceries, camping supplies, firewood, and gasoline.

- May 25–June 14 10:00 am–5:00 pm
- June 15–Sept. 3 7:00 am–9:00 pm
- Sept. 4–24* 8:00 am–8:00 pm

*Gasoline available through Oct. 15

Gifts & Books

Books, maps, postcards, and souvenirs are available at both visitor centers (see page 8). The park's concessioner, Xanterra Travel Collection, operates two other gift shops:

The **Rim Village Gift Shop** has the same hours as the Rim Village Café (see above).

The **Annie Creek Gift Shop** in Mazama Village has similar hours to the Annie Creek Restaurant (see above). You can also buy online at www.craterlakelodges.com/shop.



Crater Lake National Park belongs to everyone. We all share responsibility in protecting it. Please take a moment to become familiar with these regulations. For a full list of the park's rules, visit www.nps.gov/crla/parkmgmt/lawsandpolicies.htm.

Drones

Operating remote-controlled aircraft in the park is prohibited.

Feeding Animals

Do not feed wildlife, including birds and squirrels. Exposing them to our food alters their behavior, is bad for their health, and can be dangerous for you. Store food properly. Generally, this means in your vehicle or a campground food locker. Backcountry campers should hang their food or use a bearproof canister.

Guns

Firearms are allowed in the park in accordance with Oregon state laws. They are prohibited, however, in all park buildings.

Hiking and Climbing

Stay on trails. This prevents erosion, protects vegetation, and protects other hikers. Hiking and climbing inside the caldera are strictly prohibited. The only exception is the Cleetwood Cove Trail, the only safe and legal access to the lake shore. Serious injuries and deaths have occurred from falls inside the caldera. The walls consist of unstable rocks and soils.

Marijuana

Possession of marijuana is prohibited. Oregon state laws allowing the use of marijuana do not apply in the park, an area of federal jurisdiction.

Overnight Parking

The park is open 24 hours, but overnight parking is not allowed, except in the park's campgrounds, for guests at the park's motels, and for backpackers (permit required).

Park Features

Leave rocks, plants, animals, and artifacts undisturbed for others to enjoy. It is prohibited to collect, deface, disturb, or destroy natural or

cultural features. Do not approach, touch, feed, or disturb wildlife.

Pets

Pets are welcome in the park, but only in certain areas. Pets on leash are allowed on the Godfrey Glen Trail, Lady of the Woods Trail, Grayback Drive, and Pacific Crest Trail. Leashes must not exceed 6 feet (1.8 meters), and only one pet per hiker is allowed. Pets are not permitted on other trails, or off-trail. Pets on leash (or otherwise physically restrained) are also allowed in picnic areas, campgrounds, parking lots, and up to 50 feet (15 meters) away from paved roads. Popular places to walk a dog include Rim Village and Mazama Campground. Pets are not allowed inside buildings, including Crater Lake Lodge and The Cabins at Mazama Village. The above rules do not apply to service animals here to assist people with disabilities. Solid waste must be picked up immediately and disposed of properly, in a trash can or toilet.

Water Sports

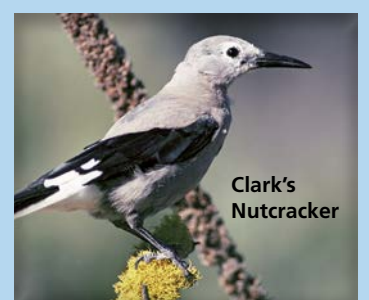
Snorkeling, scuba diving, and long-distance swimming are not allowed in Crater Lake. In 2012, after reviewing the threats posed by aquatic invasive species, the park placed a ban on the use of snorkels, wet

suits, diving gear, flotation devices, and other equipment that might serve as a vector for the introduction of non-native organisms. This includes rafts, canoes, and kayaks. Swimming is allowed at Cleetwood Cove and at Wizard Island, using standard swim suits.



Golden-Mantled Ground Squirrel

Help keep wildlife wild.
Please DO NOT FEED!



Clark's Nutcracker



Boat Tour on Crater Lake



Sunset over Crater Lake



Trolley Tour on Rim Drive

Trolley Tours

Rim Drive is one of America's most scenic roads, but it's hard to appreciate the views with your eyes on the asphalt. Fortunately, you can leave the driving to someone else. Ranger-guided trolley tours circle Crater Lake daily. Tours begin and end at Rim Village, spend 2 hours traveling clockwise around the lake, and stop at a minimum of 5 scenic overlooks. See below for departure times and ticket prices. The buses are enclosed, climate-controlled, wheelchair accessible, and seat 25 passengers. They resemble old streetcars, but they run on modern technology: powered by compressed natural gas, they emit 30-40% less pollution than gasoline-powered vehicles. The trolleys are owned and operated by The Shuttle Inc. of Klamath Falls.

Activities

Backcountry Camping

Over 95% of the park is managed as wilderness. Although some areas are closed to backcountry camping (for example, there is no summer camping with a view of the lake), exploring the park's old-growth forests and volcanic landscapes can be a rewarding experience.

All campers not staying in the park's developed campgrounds must obtain a backcountry permit. The only exception is through-hikers on the Pacific Crest Trail, who may instead sign the trail register as they enter the park. Permits are free and are available at Park Headquarters, from the visitor center or ranger station, between 9:00 am and 5:00 pm.

Bicycling

Bicycling is allowed on paved roads and the unpaved Grayback Drive. Bikes are not allowed on trails, with one exception: the Pinnacles Trail. Park roads are narrow with heavy automobile traffic. Helmets are required for riders under 16 years of age and strongly recommended

for all cyclists. The closest place to rent bikes is Diamond Lake Resort, 5 miles (8 km) north of the park.

Bicycling on park roads is physically demanding. The most popular trip is the 33-mile (53-km) Rim Drive, featuring spectacular views but also long climbs that gain a total of 3,800 feet (1,158 meters) in elevation. For a flatter, more relaxing ride, try the paved, 11-mile bike path that circles Diamond Lake.

Fishing

Originally, Crater Lake contained no fish. Between 1888 and 1941, however, 6 species were introduced. Today, only rainbow trout and kokanee salmon remain. Fishing is allowed at the bottom of the Cleetwood Cove Trail, where you'll find a short stretch—about 0.25 miles (0.4 km)—of rocky shoreline. Wizard Island, reachable by tour boat, is also open to fishing.

Fishing licenses are not necessary. There are no restrictions on the size, number, or type of fish taken. Fish may be released or kept. To prevent the introduction of non-native organisms, *no organic bait of any kind may be used*. This includes fish eggs, PowerBait, and live or dead fish. Fishing is limited to artificial lures and flies only.

Sky Gazing

With clean air and unobstructed views, the rim of Crater Lake is a great place to observe astronomical events. Discovery Point is a favorite spot to watch the sunrise. For sunsets and moonrises, try Watchman Overlook or hike to the top of Watchman Peak. Ask at a visitor center for sunrise and sunset times.

Swimming

Swimming is allowed in Crater Lake, but the water is cold! Most people swim for just a few minutes. Swimming is permitted only at Cleetwood Cove and at Wizard Island, which requires a boat tour to reach. The shoreline at both locations is rocky; there are no beaches. Snorkeling, scuba diving, and wet suits are not allowed (see page 2).

Wildlife Viewing

The park is home to many animals, but they can be difficult to spot. The most visible animals are deer and squirrels. Herds of elk are sometimes seen in the meadows along Rim Drive. Bobcats and mountain lions are present but rarely seen. Lucky observers might spot a fox, black bear, marmot, pika, wolf, porcupine, or bald eagle. Dawn and dusk are the best times to look.

Kids: You Can Become a Junior Park Ranger!



Are you between 6 and 12 years old? Do you want to learn while having fun at Crater Lake National Park? Here are 2 different ways:

- Pick up a free activity book at either visitor center. Explore the park, complete the activities, then return the book to a ranger to earn a Junior Ranger BADGE.

- Meet behind the Rim Visitor Center at 11:30, 1:00, 2:30, or 4:00 pm (June 23–Sept. 3) and participate in a free, 20-minute activity. Complete one activity to earn a Junior Ranger PATCH.



Boat Tours

Join a park ranger for a cruise around Crater Lake. See the box below for departure times and ticket prices. Boat tours on Crater Lake are operated by Xanterra Travel Collection in partnership with the National Park Service.

Tickets

Each boat holds 37 passengers. 18 tickets for each tour (June 29–Sept. 3 only) are available for advance purchase by calling 888-774-2728. The remaining 19 tickets for each tour (and all tickets June 22–28 and Sept. 4–16) are available from self-serve kiosks inside Crater Lake Lodge and the Annie Creek Gift Shop. These tickets go on sale exactly 24 hours in advance of each tour. Sales continue until the tour is sold out or until 2 hours remain before departure. At that time, if a tour is not sold out, remaining tickets can be purchased from a ticket booth (open daily at 7:45 am) at the top of the Cleetwood Cove Trail, until 45 minutes before departure. Ticket holders should arrive at the trailhead at least 45 minutes before their tour to allow time to hike down the 1.1-mile (1.7-km) trail to the lake.

Types of Tours

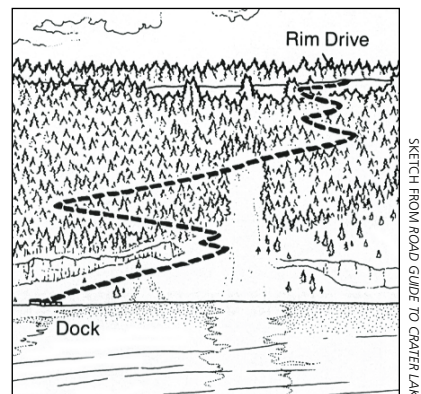
Standard tours are 2 hours long. They are ranger-narrated and circle the entire lake (but do not stop at Wizard Island). Wizard Island Tours are 5 hours long. They consist of a standard tour plus a 3-hour stay on the island, where passengers disembark to hike, swim, fish, or relax on their own. Wizard Island Shuttles are 4 hours long. They include a 1-hour (round-trip) ride to the island plus a 3-hour stay there. They do not circle the entire lake and do not include a narrated tour. Finally, for people wishing to spend 6 hours on Wizard Island, up to 6 tickets on the 8:30 am shuttle are available for that purpose. These tickets must be purchased in advance, by phone. See page 4 for details on the island's two hiking trails.

What to Bring

- Bring plenty of drinking water. Bottled water is available for purchase at both ends of the Cleetwood Cove Trail.
- Bring a lunch or snack, especially if visiting Wizard Island. Light snacks are available for purchase at the top of the Cleetwood Cove Trail.
- Sunscreen, sunglasses, and a hat are recommended for sun protection. The boats are not covered.
- Bring a jacket. Weather on the lake can be windy and chilly.
- Wear sturdy footwear, especially if visiting Wizard Island.

Hiking to Cleetwood Cove

The Cleetwood Cove Trail is the only legal access to the shore of Crater Lake. The hike is steep and strenuous: in 1.1 miles (1.7 km) it drops 700 feet (213 meters) in elevation. Walking back up is equivalent to climbing 65 flights of stairs! The trail is recommended only for those in good physical condition. It should not be attempted by anyone with heart, breathing, or walking problems. It is not accessible for people with mobility impairments. Hikers should wear sturdy shoes and carry water. Vault toilets are located at the top and bottom of the trail. Depending on snow conditions, the trail is usually open from mid-June to late October.



The Cleetwood Cove Trail drops 700 feet (213 meters) to the lake shore.

Ranger-Led Activities		Dates & Times
Ranger Talks at Rim Village Join a ranger to deepen your understanding of Crater Lake. Topics vary; check posted schedules. Meet at the Sinnott Overlook for the talks at 12:00, 1:30, and 3:00. The 4:00 talks happen at Crater Lake Lodge, either on the back porch or by the fireplace in the Great Hall. (20 minutes)		June 23–Sept. 3 12:00 pm (Additional talks may be offered) June 23–Sept. 3 1:30 pm June 23–Sept. 3 3:00 pm Sept. 4–30. Check posted schedules.) May 18–Oct. 14 4:00 pm ♿
Junior Ranger Activities ♿ Kids participate in a ranger-led activity to learn about Crater Lake and earn a Junior Ranger patch. Meet behind the Rim Visitor Center. Geared for ages 6 to 12. (20 minutes)		June 23–Sept. 3 11:30 am June 23–Sept. 3 1:00 pm June 23–Sept. 3 2:30 pm June 23–Sept. 3 4:00 pm
Afternoon Hikes Hike with a ranger to discover Crater Lake. Trails vary by day of the week. See page 4 for trail details. For Garfield Peak, meet on the back porch of Crater Lake Lodge. For Sun Notch and Plaikni Falls, meet at the trailhead. Be sure to carry drinking water. Monday, Thursday: Sun Notch (1 hour, easy, great views of the Phantom Ship) Tuesday, Friday, Sunday: Plaikni Falls (1.5 hours, easy, hike to a hidden waterfall) Wednesday, Saturday: Garfield Peak (2.5 hours, strenuous, spectacular 360° views)		June 30–Sept. 16 2:00 pm
Watchman Peak Sunset Hikes Ascend to a breathtaking viewpoint and watch the sun go down over the Cascade Mountain Range. Meet at Watchman Overlook, a parking area with wooden fences 3.8 miles (6.1 km) northwest of Rim Village. Flashlights are not needed. See page 4 for trail details. (1.5 hours)		July 12–25 7:30 pm Aug. 27–Sept. 4 6:30 pm July 26–Aug. 7 7:15 pm Sept. 5–13 6:15 pm August 8–17 7:00 pm Sept. 14–16 6:00 pm August 18–26 6:45 pm
Evening Programs ♿ Relax under the stars as you learn about the park. Check posted schedules for topics. Meet at the Mazama Campground Amphitheater, between loops D and E. (45 minutes)		June 23–July 31 9:00 pm (Additional programs may be offered Sept. 4–30.) August 1–20 8:30 pm Aug. 21–Sept. 3 8:00 pm Check posted schedules.)
Rim Drive Trolley Tours ♿ Circle the lake on a ranger-narrated tour of Rim Drive. See the top of this page for more information. Tickets are sold from a trolley parked by the Community House in the middle of Rim Village. Tickets may be purchased the day of the tour, or the day before, from 9:00 am to 3:00 pm. To reserve tickets further in advance, call 541-882-1896 or visit www.craterlaketrolley.com . Tours cover a variety of topics. (2 hours)		June 29–Sept. 3 10:00 am 11:00 am 12:00 pm June 22–28 10:30 am 1:00 pm & Sept. 4–30* 12:00 pm 2:00 pm 1:30 pm 3:00 pm 3:00 pm *No tours on Sept. 8 & 15.
Crater Lake Boat Tours Ranger-narrated boat tours offer a unique perspective on Crater Lake. See the right-hand side of this page for details. Note: Taking a boat tour requires hiking down—and back up—one of the steepest trails in the park. Tours cover a variety of topics. (2 hours) *Kids must be at least 3 years old to take a boat tour. Noise, sun, wind, and waves make tours very unpleasant for infants.		June 22–Sept. 16* Standard Tours 9:30 am Wizard Island Tours 9:45 am 10:00 am 12:45 pm 12:00 pm Wizard Island Shuttles 1:15 pm 8:30 am 3:30 pm 11:30 am 3:45 pm *Tours might operate on a reduced schedule Sept. 4–16; check posted flyers. No tours on Sept. 8 & 15.

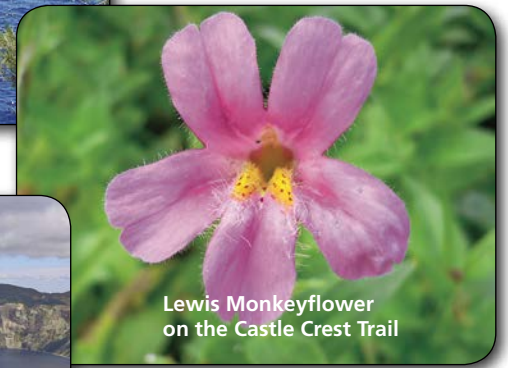
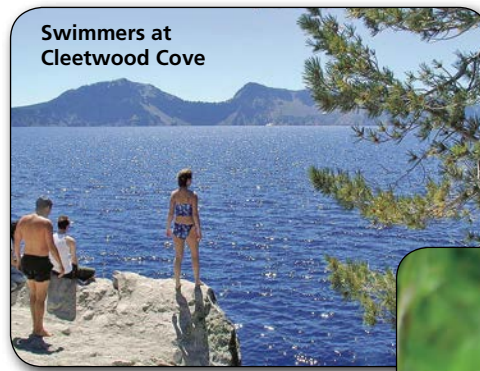
Activities are free of charge except for trolley & boat tours. Programs are subject to cancellation due to weather or unforeseen circumstances.



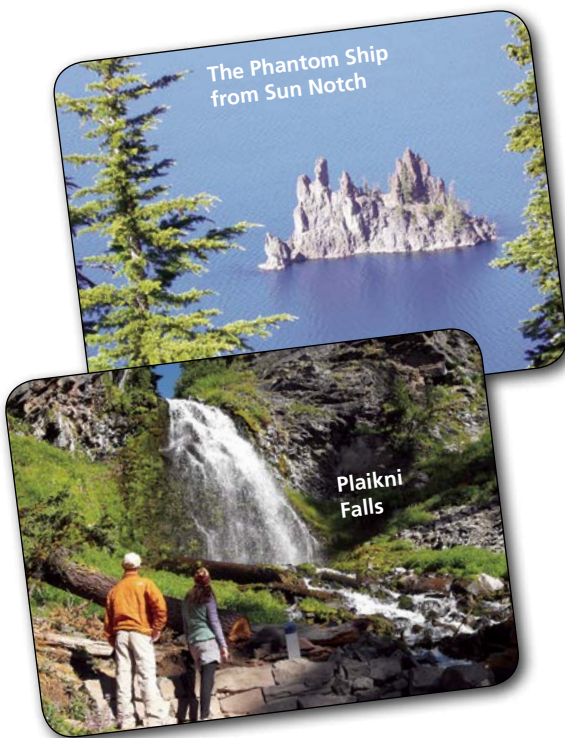
Let's Go Hiking!

Hi, I'm Ranger Madeline. We have 90 miles (145 km) of hiking trails here at Crater Lake. Our most popular day hikes are listed on this page. If you are visiting in June or early July, be aware that some trails might still be closed by snow. Please help us protect this special place by following a few important rules:

- ⚡ No hiking or climbing inside the caldera! The walls are dangerously steep and unstable. The one exception is the Cleetwood Cove Trail, the only legal access to the lake shore.
- ⚡ Leave all rocks, plants, animals, and artifacts undisturbed for the enjoyment of future hikers.
- ⚡ Overnight backpacking requires a permit, available at Park Headquarters between 9:00 am and 5:00 pm. Some areas are not open to backcountry camping.
- ⚡ Pets are allowed on the Godfrey Glen Trail, Lady of the Woods Trail, and Pacific Crest Trail. Pets must be leashed; only one pet per hiker (see page 2).
- ⚡ To protect vegetation and prevent erosion, please stay on the trails.

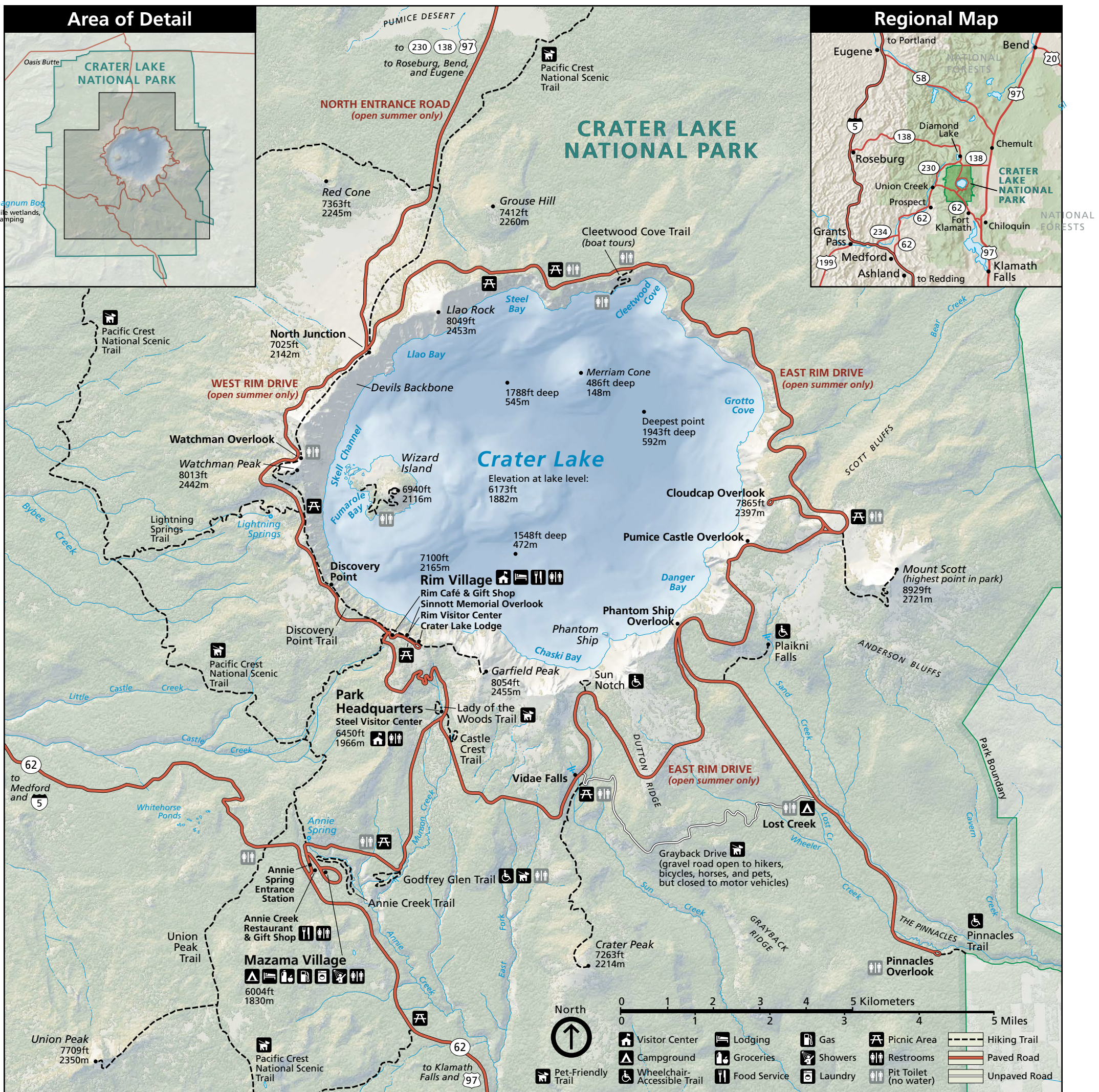


Castle Crest	Lady of the Woods	Sun Notch	Trail	The Pinnacles	Godfrey Glen	Plaikni Falls
0.5 miles (0.8 km) loop trail	0.7 miles (1.1 km) loop trail	0.8 miles (1.3 km) loop trail	<i>Roundtrip</i>	0.8 miles (1.3 km)	1.1 miles (1.8 km) loop trail	2.0 miles (3.2 km)
100 feet (30 meters)	120 feet (37 meters)	150 feet (46 meters)	<i>Elevation Gain</i>	10 feet (3 meters)	50 feet (15 meters)	100 feet (30 meters)
20 minutes	30 minutes	30 minutes	<i>Time</i>	30 minutes	30 minutes	1 hour
Flowers, Meadow, Creek	Historic Architecture	Views of Phantom Ship	<i>Highlight</i>	Volcanic Spires	Peaceful Forest	Waterfall, Flowers
Loop trail through a lush meadow. Abundant wildflowers in July. The trail is rocky and slippery in places. Self-guiding brochures are available at the trailhead.	Loop trail around Park Headquarters. Self-guiding brochures, available at the trailhead, describe how early park architects integrated their designs with the natural landscape.	Short uphill walk through a meadow to the rim of Crater Lake. Great views of the Phantom Ship. Use caution near cliff edges. Accessible to strong wheelchair users with assistance.	<i>Description</i>	Easy walk along the rim of Pinnacle Valley. Great views of volcanic spires. Use caution near cliffs. Trail ends at park boundary. Accessible to wheelchair users with assistance. Open to bicycles.	Easy stroll through an old-growth forest, with some canyon views. Dirt path; accessible to wheelchair users with assistance. Self-guiding brochures are available at the trailhead.	Easy walk through an old-growth forest to a waterfall. Many flowers in July. The first ¾ is accessible to wheelchair users with assistance, but the final, short climb to the falls might be too steep.
East Rim Drive, 0.5 miles (0.8 km) east of Park Headquarters. Can also access from the Steel Visitor Center.	Behind the Steel Visitor Center, on the south side of the building.	East Rim Drive, 4.4 miles (7.1 km) east of Park Headquarters.	<i>Trailhead Location</i>	End of the Pinnacles Road, 6 miles (9.7 km) southeast of the Phantom Ship Overlook.	2.4 miles (3.9 km) south of Park Headquarters.	Pinnacles Road, 1.2 miles (1.9 km) southeast of the Phantom Ship Overlook.
The flowers here are nourished by springs emerging from the hillside.	The trail's name refers to a sculpture of a woman carved into a boulder along the trail.	This U-shaped valley was carved by glaciers that once flowed down Mt. Mazama.	<i>Nature Note</i>	The Pinnacles are chimneys formed when hot ash cooled after the big eruption.	Trail is named after William Godfrey, a ranger who died in a blizzard here in 1930.	Snowmelt, not Crater Lake, is the source of Plaikni Falls' water.
Easy				Easy		



Discovery Point	Trail	Fumarole Bay	Watchman Peak	Annie Creek
2.0 miles (3.2 km)	<i>Roundtrip</i>	1.7 miles (2.7 km)	1.6 miles (2.6 km)	1.7 miles (2.7 km) loop trail
100 feet (30 meters)	<i>Elevation Gain</i>	150 feet (46 meters)	420 feet (128 meters)	200 feet (61 meters)
1 hour	<i>Time</i>	1 hour	1 hour	1½ hours
Lake Views	<i>Highlight</i>	Swimming, Fishing	Panoramic Views	Creek, Canyon, Flowers
Trail along the rim of Crater Lake through a pretty forest of whitebark pines and mountain hemlocks. Great views of the lake and Wizard Island. Use caution near cliff edges.	<i>Description</i>	Rocky trail on Wizard Island leading to a shallow cove with clear water. Upon reaching Fumarole Bay, the maintained trail ends but a rough path continues to the far end of the cove.	Moderate ascent to a fire lookout above Wizard Island. Spectacular views in all directions. Great place to watch the sunset. Trail may be closed until mid-July due to snow.	Moderately strenuous hike through a deep, stream-cut canyon. Lots of water, wildflowers, and sometimes wildlife. Self-guiding brochures are available at the trailhead.
West end of Rim Village, where the paved walk becomes a dirt path. Can also start from Discovery Point.	<i>Trailhead Location</i>	Wizard Island dock, reachable only by boat tour or shuttle from Cleetwood Cove. See page 3 for information.	3.8 miles (6.1 km) northwest of Rim Village. Park at the viewpoint surrounded by wooden fences.	Mazama Campground, behind the amphitheater (between loops D and E). Limited parking in E Loop.
Gold prospector John Wesley Hillman first spotted Crater Lake near this point in 1853.	<i>Nature Note</i>	Abundant lichen on the tree trunks is an indication of excellent air quality.	Built in 1932, the peak's historic fire lookout is still used by rangers today.	The canyon is carved into a layer of ash—200 feet (60 m) thick—from the big eruption.
Moderate				

Wizard Summit	Cleetwood Cove	Garfield Peak	Trail	Mount Scott	Crater Peak	Union Peak
2.2 miles (3.5 km)	2.2 miles (3.5 km)	3.6 miles (5.8 km)	<i>Roundtrip</i>	4.4 miles (7.1 km)	6.5 miles (10.5 km)	9.8 miles (15.8 km)
760 feet (232 meters)	700 feet (213 meters)	1,010 feet (308 meters)	<i>Elevation Gain</i>	1,250 feet (381 meters)	765 feet (233 meters)	1,600 feet (448 meters)
1½ hours	1½ hours	2 to 3 hours	<i>Time</i>	3 hours	3½ hours	5 to 6 hours
Views, Summit Crater	Swim, Fish, Boat Tours	Panoramic Views	<i>Highlight</i>	Panoramic Views	Forest, Views, Solitude	Panoramic Views
Rocky climb to the top of Wizard Island. Spectacular lake views, interesting geology. A 0.3-mile (0.5-km) path leads around the 90-foot-deep (27-meter) crater at the summit.	The only legal access to the shore of Crater Lake. Strenuous trail with a steep grade, leading to a rocky shoreline and tour boat dock. See page 3 for details.	Rocky climb to a high peak. Spectacular views along the way and at the top. Diverse plant life, many wildflowers. Top section may be closed until July due to snow. Use caution near cliff edges.	<i>Description</i>	Gradual ascent of the park's highest peak. Great views in all directions. Best in the morning, when the light is ideal for lake viewing. May be closed until July due to snow.	Moderate-to-strenuous hike to the summit of a small volcano. No lake views, but fine views of the Klamath Basin to the southeast. A peaceful walk through forests and meadows.	Long forest walk followed by a very steep climb. Great views from the top and interesting geology, but no view of Crater Lake. Top section may be impassable until July due to snow.
Wizard Island dock, reachable only by boat tour or shuttle from Cleetwood Cove. See page 3 for information.	North side of the lake, 11 miles (17.6 km) from Rim Village if traveling clockwise on Rim Drive.	East end of Rim Village. Follow the paved promenade behind Crater Lake Lodge.	<i>Trailhead Location</i>	East Rim Drive, 14 miles (22.5 km) east of Park Headquarters.	East Rim Drive, 3 miles (4.8 km) east of Park Headquarters at the Vidae Falls Picnic Area.	Highway 62 at the Pacific Crest Trailhead, 1 mile (1.6 km) west of the Crater Lake road junction.
The dead trees at the summit were killed by dwarf mistletoe, a parasitic plant.	In August, the average water temperature at the lake's surface is 59°F (15°C).	Rocky slopes along the trail are home to American pikas and yellow-bellied marmots.	<i>Nature Note</i>	Mount Scott is the park's highest peak—8,929 feet (2,721 meters) in elevation.	Upper Klamath Lake is the largest in Oregon, but its average depth is only 14 feet.	Union Peak is the core of an old volcano eroded by ice-age glaciers.
Strenuous				Strenuous		



Highlights of the Rim Drive

Rim Drive is a 33-mile (53-km) road that encircles Crater Lake. It is one of America's most scenic byways, with spectacular views in all directions. The full loop is typically open from early July to late October. It can be driven, without stopping, in about an hour, but plan on at least 2 to 3 hours to enjoy the varied sights. The road is narrow, so buses and motorhomes should use caution. There are more than 30 scenic pullouts along the route, many of which have roadside exhibits. Be sure not to miss these 7 "must-see" stops. For more information, pick up the excellent *Road Guide to Crater Lake National Park* (48 pages, \$7.95) at either visitor center.



East Rim Drive

Discovery Point

Imagine seeing Crater Lake by accident. It was near this spot, on the back of a mule in 1853, that gold prospector John Hillman became the first European-American to stumble across what he called "Deep Blue Lake."

Watchman Overlook

This pullout offers an unmatched view of Wizard Island, a cinder cone that erupted out of Crater Lake approximately 7,300 years ago. To find this unmarked pullout, drive 3.8 miles (6.1 km) west of Rim Village and look for a viewpoint lined with wooden fences.

Cloudcap Overlook

This overlook sits at the end of a 1-mile (1.6-km) spur road, the highest paved road in Oregon. Whitebark pines cling for survival here, dwarfed and contorted by the harsh winds.

Pumice Castle Overlook

Stop here to see one of the park's most colorful features: a layer of orange pumice rock that has been eroded into the shape of a medieval castle. Watch carefully for this unmarked viewpoint, located 1.1 miles

(1.8 km) west of the Cloudcap Overlook junction and 2.4 miles (3.9 km) east of the Phantom Ship Overlook.

Phantom Ship Overlook

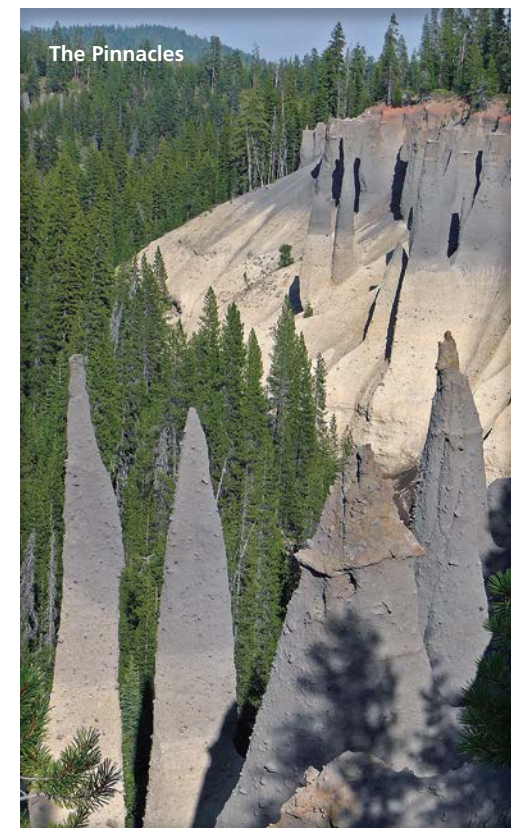
Nestled against the shore, Crater Lake's "other island" escapes detection by many park visitors. Though it resembles a small sailboat, the island is as tall as a 16-story building. It's made of erosion-resistant lava, 400,000 years old—the oldest exposed rock within the caldera.

Pinnacles Overlook

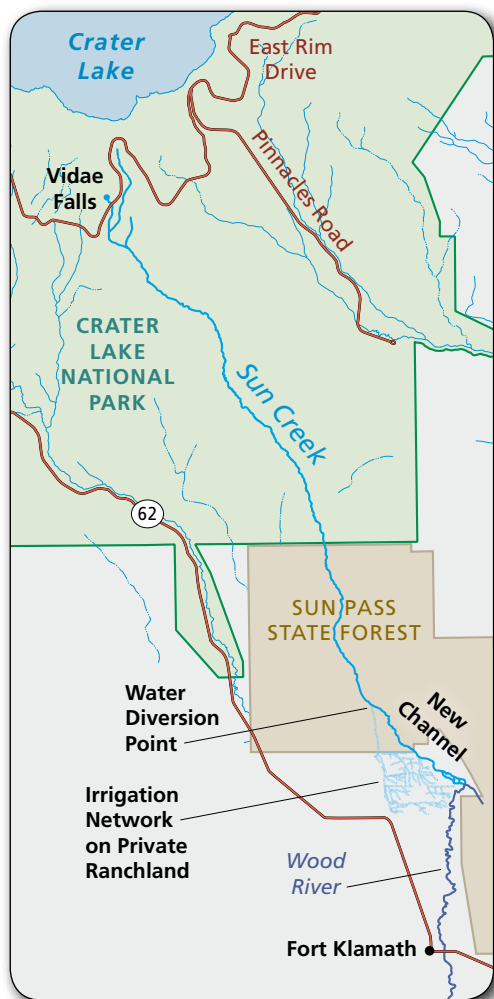
This overlook is well worth the 6-mile (10-km) detour from Rim Drive. Colorful spires, 100 feet (30 meters) tall, are being eroded from the canyon wall. The Pinnacles are "fossil fumaroles" where volcanic gases once rose up through a layer of volcanic ash, cementing the ash into solid rock.

Vidae Falls

Look for this cascading waterfall between Phantom Ship Overlook and Park Headquarters. A spring-fed creek tumbles over a glacier-carved cliff and drops 100 feet (30 meters) over a series of ledges. In summer, wildflowers flourish in the cascade's spray.



The Pinnacles



Saving the Bull Trout of Sun Creek

New Connection with the Wood River Is a “Watershed Event” for This Threatened Species

Last summer, the park’s only population of native fish—isolated for nearly 150 years in a small creek southeast of the lake—was reunited with the river system of its ancestors. More than a dozen government agencies, non-government organizations, and private landowners collaborated to reconnect Sun Creek to the Wood River at the streams’ historic confluence just south of the park. (The connection was severed in the 1870s, when the waters of Sun Creek were diverted to irrigate ranchland.) This event was the culmination of a 29-year effort to save the park’s bull trout and represented, both literally and figuratively, a “watershed event” in the recovery of the species.

Bull trout (*Salvelinus confluentus*) are cold-water fish native to many rivers and lakes in western North America. While they never inhabited Crater Lake, they thrived south of the lake in Sun Creek, Annie Creek, and other bodies of water in the Klamath Basin. Once abundant, they are now listed as threatened under the Endangered Species Act, a victim of habitat fragmentation, declining water quality, and the introduction of non-native competitors.

In 1989, the park discovered that its sole remaining bull trout population had dwindled to roughly 150 individuals confined to a 1.2-mile (1.9-km) stretch of Sun Creek. The

apparent cause of the decline was competition from non-native brook trout, a species from the eastern US introduced to park streams in large numbers (275,000 into Sun Creek alone!) for recreational fishing between 1912 and 1975. Brook trout lay more eggs than bull trout, breed at a younger age, and compete for the same food and space. They also hybridize with bull trout, producing offspring that are sterile. By 1992, Sun Creek’s bull trout seemed destined for extinction, outnumbered by brook trout by a ratio of 13 to 1.

To save the natives, biologists knew they’d have to rid the creek of the stocked fish. It was a long and labor-intensive process, taking from 1992 to 2005 and consisting of four main tasks. First, workers constructed two artificial waterfalls on Sun Creek, near the park boundary, tall enough to keep non-native fish from re-entering the park from downstream. Second, they carefully captured the creek’s bull trout and temporarily housed them elsewhere. Third, they eradicated brook trout by introducing antimycin (a fish toxin) to the water and using a technique called electrofishing (catching fish by stunning them with an underwater electric current). Finally, with the non-natives vanquished, the bull trout were returned to their home. With the creek all to themselves, they flourished, growing in size and number to more than 2000 individuals in 7 miles (11.2 km) of stream.

This was great news, but biologists knew that the long-term survival of the population would depend on its ability to re-establish gene flow with other bull trout populations in the Klamath Basin (in order to limit inbreeding and the loss of genetic variation). So, from 2010 to 2013, the park partnered with two state agencies and the US Fish and Wildlife Service to build two more waterfalls—and remove the non-native brook trout—along a section of Sun Creek outside the park, on state land, adding 4.3 miles (7 km) to the population’s territory. Now, just 2.7 miles (4.3 km) remained between the fish and their historic migratory corridor of the Wood River. There was just one problem: Sun Creek no longer existed as a natural channel in this area of private ranchland. In the 19th century, its waters had been siphoned off for irrigation to facilitate the production of grass and cattle.

Fortunately, through a public-private partnership involving more than a dozen agencies, organizations, tribes, and landowners, a solution was devised. The nonprofit group Trout Unlimited raised money to purchase the water rights to 267 acres (108 hectares) of private land. They dedicated the rights to “instream use” (rather than irrigation), ensuring that, even in mid-summer, Sun Creek will now flow in perpetuity. A new channel was excavated, across one of ranches, to accommodate the water. Workers planted native vegetation along the channel and constructed a fence on either side to exclude cattle. While much of Sun Creek’s water will continue to be diverted during the grazing season, a new, more efficient irrigation system—featuring covered pipes rather than open ditches—will limit water loss from evaporation and seepage. And a “fish screen” at the point of diversion now keeps trout safely in the creek and out of the irrigation network.

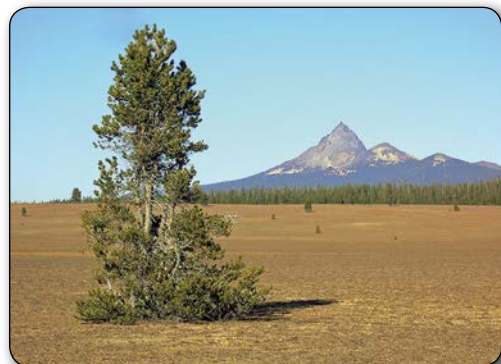


Sun Creek’s resident bull trout feed on insects and are quite small, typically 5 to 10 inches (13-25 cm) long. Once they are free to migrate, as their ancestors did, some will likely spend part of their lives in the Wood River and Upper Klamath Lake, growing much larger and eating other fish.

Last summer, when the final section of channel was activated, it was a “watershed event” in more than one way. For the conservation community, it exemplified how multiple organizations can share expertise to achieve success. In the future, this kind of collaboration will be key when trying to help species that require safe passage, and suitable habitat, across different jurisdictions. For the park’s bull trout, back from the brink of elimination, it was an opportunity to recolonize the waterways of their ancestors and hopefully, in the years ahead, reconnect with other isolated populations in the greater Klamath Basin.



To reconnect Sun Creek with the Wood River, biologists designed and then dug a new channel across private ranchland. They placed logs in the stream to give the fish cover and increase habitat diversity. Along the stream, they planted native trees that will grow to provide shade.



Trees are few and far between in the Pumice Desert RNA, but lodgepole pines are slowly encroaching. Given more time—a few thousand years, perhaps—the forest might recover.



The round-leaved sundew (*Drosera rotundifolia*) lures insects with sugary drops of sticky fluid. It is one of 5 carnivorous plants found in the Sphagnum Bog RNA.



The Sphagnum Bog RNA is a botanist’s delight, with more than 170 plant species. But watch your step, or you’ll sink waist-deep into the mire.



Lloao Rock is a vertical cliff capped by pumice from the caldera-forming eruption. To protect the fragile plants that grow in the pumice, summer hiking in the Lloao Rock RNA is prohibited.

Meet the Park’s Research Natural Areas

While Crater Lake may be the scenic and scientific centerpiece of the park that bears its name, it’s not the only feature of national importance to be found here. The park is also home to four Research Natural Areas (RNAs). RNAs are federal lands that have been singled out because they represent prime examples of particular habitats. In Oregon, there are more than 160 such sites, on lands managed by the Department of the Interior, Department of Agriculture, and Department of Defense. Each one safeguards a different type of environment in a relatively undisturbed state.

RNAs are selected administratively, rather than established legislatively. Ours were designated in 1994 by the park’s superintendent. They are managed to preserve natural features and processes, protect genetic diversity (including rare species), and promote non-manipulative scientific research (i.e. research that observes, but does not alter, existing conditions). Roads, trails, and camping are not allowed. At a few sites, public entry is excluded altogether, where recreational pursuits could have negative im-

pacts. Otherwise, off-trail exploration is permitted, and can be of great interest to someone with a background in botany or ecology.

The park’s largest RNA can actually be seen from the road—no hiking required! The Pumice Desert RNA abuts the North Entrance Road and covers 2,950 acres (1,190 hectares). It’s an outstanding example of a subalpine pumice field, a treeless plain that has yet to recover from the eruption of Mount Mazama 7,700 years ago. The collapse of the mountain filled this valley with a fiery flow of ash and pumice that’s estimated to be 200 feet (60 meters) thick. Today, researchers come here to study plant succession and adaptation. Only 15 plant species can tolerate the Pumice Desert’s infertile soil, short growing season, temperature extremes, and the gnawing action of pocket gophers.

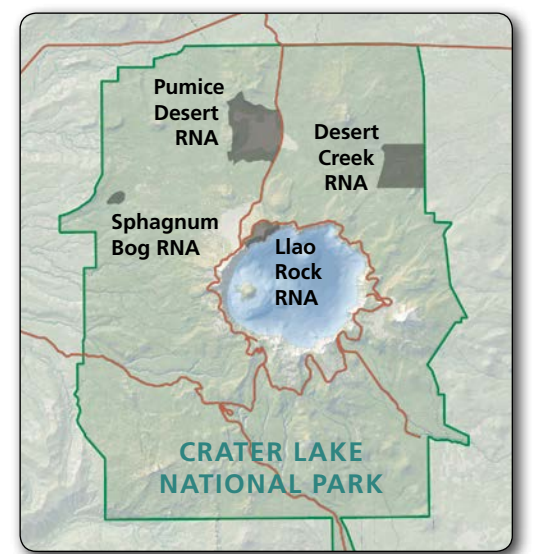
A greater variety of plants can be found 5 miles (8 km) to the west, in the much smaller Sphagnum Bog RNA. At least 170 species have been identified in this 160-acre (65-hectare)

wetland, including carnivorous sundews and bladderworts. The bog, fed by springs, is a complex mosaic of habitats: 8 distinct plant communities, 2 forest types, and 3 aquatic environments are represented. It’s also an easy place to get lost—and a guaranteed place to get your feet soaked—so prospective visitors should be cautious. Atop its foundation of Mazama pumice, a layer of spongy peat, 3 to 6 feet (1-2 meters) deep, has developed over the past 3,000 to 4,000 years.

Setting foot in the Lloao Rock RNA won’t get you wet, but it will get you fined: this 435-acre (175-hectare) RNA has been off-limits to summer hiking since 2013 to protect several rare and sensitive plant species. Lloao Rock is a prominent peak that towers almost 1,900 feet (580 meters) above the northwest shore of the lake. It’s capped by a layer of beige pumice, which is home to a natural garden of miniature plants that somehow survive in this windswept location. One species of concern is the Crater Lake rockcress (*Boechera horizontalis*), a flower found almost exclusively in Crater Lake National Park. Another is the pumice moonwort (*Botrychium pumicola*), a fragile fern that is vulnerable to trampling.

Last but not least, the 1,830-acre (740-hectare) Desert Creek RNA protects two habitats that are rarely found in such pristine condition. First is a spectacular, old-growth ponderosa

pine forest. Unlike most ponderosa stands in the Cascades, this one was never logged, owing to the park’s early establishment in 1902. Second is a dry grassland dominated by bitterbrush shrubs. Bitterbrush grasslands were once common along the eastern slope of the Cascades but have been decimated due to livestock grazing and fire suppression. By saving remnant biological communities like these—and encouraging scientific investigation—the nationwide network of Research Natural Areas plays an important role in protecting our natural heritage.





Kari Bertram of Coeur d'Alene, Idaho, spotted this red fox in Mazama Village. Red foxes are not always red—most at Crater Lake have fur ranging from silver to black. No matter their color, they all have a long tail with a white tip.

Wanted: Your Wildlife Observations

Scientists need your help! If you spot any interesting animals during your Crater Lake visit, or if you observe any unusual behavior, please let us know! Your observations will help us learn which animals live in the park and how they use it. In 2017, park visitors and employees submitted 81 observations of 40 different species, including the black-backed woodpecker, western toad, bobcat, fisher, gray wolf, peregrine falcon, and the (non-native) Asian long-horned beetle.

To report your sighting, send an email to craterlake@nps.gov or find a ranger at a visitor center. Let us know the date and precise location of your encounter, a detailed description of what you saw, as well as your name and contact info, in case we have follow-up questions. And if you captured any photos, send them along (ideally with permission for us to use them in reports and publications). Photographic evidence can be very important in confirming the identity of some species. Just remember that approaching, feeding, or disturbing wildlife is strictly prohibited—so please keep your distance. Thanks for your participation!



Pumice moonworts are 2-inch-tall ferns that live on Liao Rock. They're also known as grapeferns: their reproductive spores are held in tiny capsules that resemble green grapes.



Pronghorn antelope are sometimes spotted in the Desert Creek RNA, browsing on bitterbrush. The shrub's trident-shaped leaves taste bitter to humans but are favored by wildlife.



Ponderosa pines need fire to keep rival species at bay. At Desert Creek, the park manages fire—both prescribed and natural—to mimic the fires that occurred here historically every 10-30 years.

What Determines the Water Level in Crater Lake?

Precipitation and Evaporation Are Not the Only Factors

Most people who visit Crater Lake eventually find themselves wondering about the water level. Indeed, questions about the lake's "hydrologic budget" have perplexed scientists for more than a century. Unlike most lakes, Crater Lake does not completely fill its basin. While it's the deepest lake in the USA, with an official depth of 1,943 feet (592 meters), its surface lies more than 500 feet (152 m) below the lowest point on its rim. So, what governs the water level? To what degree does it fluctuate? Could it someday rise up and overflow? Or is it destined to drop in the future due to climate change?

Scientists have been monitoring the lake's level since 1896. They've noticed that it fluctuates with the seasons (see graph below) and that it also responds to prolonged periods of wet or dry weather. Drought in the 1920s caused the surface to drop to its lowest recorded mark of 6,163 feet (1,879 m) above sea level in the 1930s and early 1940s. A series of snowy winters in the early 1970s pushed it to a record high elevation of 6,179 feet (1,883 m) in 1975. Although 16 feet (5 m) of variation might seem like a lot, it represents less than 1% of the lake's total depth. And there's evidence that the surface has stayed within this narrow range, or close to it, for much of the lake's history.

Along the shore of the lake, researchers have noted a number of wide, gently-sloping "beaches." Right now, they're largely underwater: they extend from just above the present lake level to a depth of about 18 feet (5.5 m). On a calm day, you can see many of these submerged shelves from overlooks on the rim. Unlike the steep slopes above and below them, their profile is fairly flat. They could only have been formed by the action of waves, lapping against the walls of the caldera for hundreds or thousands of years.

How do we account for the relative long-term stability of the water level? Has the lake achieved a rough balance between precipitation and evaporation? On the contrary, the rate of precipitation is more than twice that of evaporation! Each year, Crater Lake receives an average of 80 inches (203 cm) of water, mostly in the form of snow that falls directly on the lake's surface. (No streams or rivers feed into the lake, and just 17% of its input consists of runoff from the surrounding cliffs.) Only about 30 inches (76 cm) of water are removed from the lake annually through evaporation.

Instead, it's steady "seepage" that maintains the lake's balance. Water is leaking through the caldera's walls at the rate of 76 cubic feet (2.1 m³) per second, or more than 2 million gallons (7.6 million liters) every hour! Scientists were able to calculate the rate of seepage in 1985, by observing how much the lake dropped when it was briefly covered by a layer of skim ice, preventing evaporation. Much of the seepage seems to be occurring along the northeast caldera wall. Below a line of cliffs known as the Palisades, geologists have identified a permeable layer of rock, which continues below lake level to a depth of 140 feet (43 m). The layer consists of loose rubble evidently dropped by a glacier that flowed down the north flank of Mount Mazama several hundred thousand years ago. Essentially, Crater Lake is a giant bathtub: partway up the side it has an "overflow drain" that keeps it from filling.

More was learned in the year 2000, when a sonar-equipped boat collected 16 million soundings and created a detailed topographic map of the lake floor. The map revealed the existence of additional "drowned beaches"—bands of flat terrain running parallel to the

shore—at various locations around the lake. The beaches occur at 8 different depths, ranging from 21 to 108 feet (6.5 to 33 m) below the surface. None is nearly as broad as the beach near the present waterline, but each likely represents an extended period of time—either decades or centuries—when the lake held at that particular level.

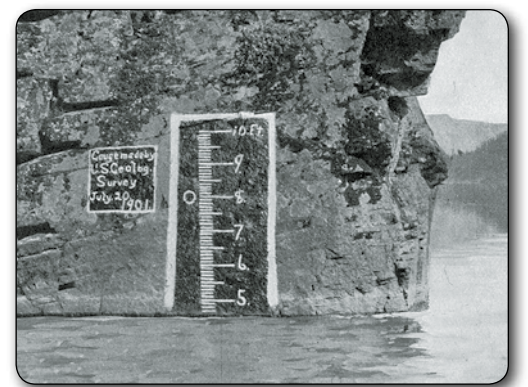
These clues, and others, have led scientists to conclude that Crater Lake filled rapidly and steadily for several hundred years following the collapse of Mount Mazama 7,700 years ago.

Then, when the lake reached its "overflow drain," the rate of filling slowed (and periodically stalled) as the water level climbed to its present, long-term zone of minor fluctuation. There is no indication that the lake has ever been significantly higher than it is today. The absence of "stranded beaches" and the presence of lakeside lichens and large trees suggest the opposite. Researchers have found pines greater than 400 years old growing less than 15 feet (5 m) above the water.

But what about climate change? Could the water level drop as our climate heats up? It's certainly possible. One model predicts that a 30% decline in precipitation would, over time, cause the surface to fall 95 feet (29 m) before reaching equilibrium. It's not a given, however, that drier weather is in southern Oregon's immediate future: while the park has seen a decline in snowfall over the past few decades, it's received more bountiful rain. Higher temperatures might alter the type of precipitation that falls here, but not necessarily the amount.

Another remaining mystery—and one of the park's most frequently asked questions—concerns the fate of the water that seeps out of the lake. Where does all that water go? As yet, nobody knows! In the 1980s, researchers from the US Geological Survey analyzed the water chemistry of 28 springs in the vicinity of the lake, both inside and outside the park. None of the samples matched the profile of Crater Lake. The lake's water is relatively enriched in boron, lithium, and other elements that are introduced by hydrothermal vents on the lake floor. Two springs northwest of the caldera (Crater Springs and Oasis Spring) were found to share some of the lake's characteristics, but this was probably a coincidence. Calculations showed that, at most, only 7% of their output could be coming from the lake.

Since 1896, much has been learned about Crater Lake's water budget. But with such complex dynamics—and so many unanswered questions—the level of the lake is sure to remain a subject of wonder, curiosity, and scientific study far into the future.



In 1901, Joseph Diller of the US Geological Survey painted this scale on a lakeshore rock—one of the first attempts to measure the lake level over time.



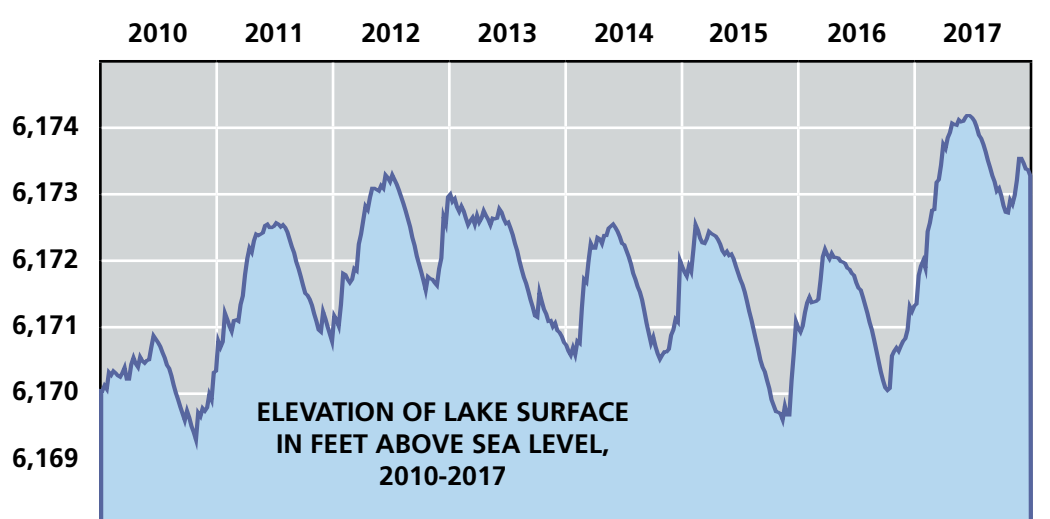
In late summer, a white "bathtub ring" becomes evident along the shore of Crater Lake. It's a deposit of silica, composed of the skeletons of dead algae (diatoms). Its upper limit approximates the high-water mark from late spring.



The presence of broad, gently sloping "beaches"—like this one, on Wizard Island—is evidence that the lake's level has held relatively steady, within 20 feet (6 meters) or so, for hundreds, and probably thousands, of years. It would have taken that long for waves, pounding against the rocky cliffs, to sculpt these level platforms.



The Palisades are a series of cliffs that loom over the lake's north shore. Below the cliffs is a pile of rubble, left behind by ancient glaciers, through which most of the lake's seepage is thought to occur. More than 2 million gallons (7.6 million liters) of water leak out of Crater Lake every hour!



Each year, the level of Crater Lake typically fluctuates 2 to 3 feet. Winter storms make it rise; dry summers cause it to fall. In 2017, though, the surface rose by more than 4 feet, bringing it to its highest level since 2001—and 1 foot above the historical average, dating back to 1896.

Climate Chart

Summers at Crater Lake are short, but generally warm and sunny. Even so, the lake is occasionally hidden by clouds. July, August, and September offer the best chance for clear, dry weather. In May, June, and October, sunny days alternate with periods of rain and snow. Winters in the park are long and snowy. Storms from the Pacific Ocean dump an average of 43 feet (13 meters) of snow at Park Headquarters. The park's tremendous snowfall is a result of its position at the crest of the Cascade Mountains.

FAHRENHEIT	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average Daily High (°F)	34	35	37	42	50	58	69	69	63	52	40	34
Average Daily Low (°F)	18	18	19	23	28	34	41	41	37	31	23	19
Avg. Snowfall (inches)	100	81	83	45	19	4	0.2	0.1	3	21	61	93
Avg. Snow Depth (inches)	79	101	115	111	76	24	1	0	0	2	16	47
Avg. Lake Surface Temp. (°F)	39	38	38	38	40	45	54	59	56	50	45	41

CELSIUS	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average Daily High (°C)	1	2	3	6	10	15	21	21	17	11	4	1
Average Daily Low (°C)	-8	-8	-7	-5	-2	1	5	5	3	-1	-5	-7
Avg. Snowfall (cm)	254	206	211	115	49	9	0.5	0.3	7	53	155	237
Avg. Snow Depth (cm)	201	256	292	281	193	60	3	0	1	6	42	120
Avg. Lake Surface Temp. (°C)	4	3	3	3	4	7	12	15	13	10	7	5

Data is from Park Headquarters, 1931-2017.

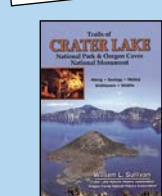
Recommended Reading



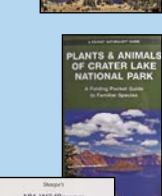
Crater Lake: The Story Behind the Scenery
Large photos with detailed captions accompany the text of this popular book. 48 pages, \$11.95.



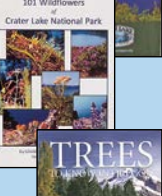
Crater Lake: Gem of the Cascades
A comprehensive guide to the park's geologic story, written by a former ranger. 168 pages, \$15.95.



Road Guide to Crater Lake National Park
Consult this guide as you circle the lake for a deeper understanding of the park's features. 48 pages, \$7.95.



Trails of Crater Lake & Oregon Caves
A detailed guide to 24 hikes. 112 pages, \$14.95.



Plants & Animals of Crater Lake Nat'l Park
This folding, waterproof guide will help you identify the park's most visible species. 11 pages, \$6.95.

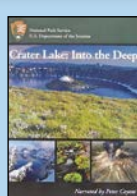


101 Wildflowers of Crater Lake Nat'l Park
Detailed descriptions and vivid photos of the park's most common flowers. 74 pages, \$14.95.



Trees To Know in Oregon
Tree identification is easy and enjoyable with this photo-packed, fact-filled guide. 153 pages, \$18.00.

Other Useful Items



Crater Lake: Into the Deep DVD
Own the film shown at the visitor center. Discover the park's significance and explore the lake's violent past. 22 minutes, \$14.99.



The Mountain That Became a Lake CD
Rangers, scientists, and tribe members share facts, stories, and insight about the lake on this 60-minute recording. \$16.95.



Crater Lake Topo Map
Waterproof and tearproof. 1:55,000 scale. \$11.95.



Crater Lake Cap
Keep your head cool and shaded with this 100% cotton ballcap. \$21.99.



Star & Planet Guide
Rotating "planisphere" for locating stars, planets, and constellations. \$11.99.



Crater Lake Water Bottles
Choose from a variety of designs and materials. \$3.99 and up.



Crater Lake Reusable Shopping Bag
Earth-friendly and great for groceries. Made from recycled materials. \$3.99.



Clark's Nutcracker T-Shirt
100% cotton. Bird on front, lake on back. \$19.99.

Support Your Park

Volunteer Your Time

Looking for a hands-on way to help the park? Consider sharing your time and talents as a Crater Lake VIP (Volunteer-In-Parks). Full-time volunteers are needed throughout the year to help staff visitor centers, present interpretive programs, and assist with research and monitoring projects. Opportunities are advertised at www.volunteer.gov. Volunteers are provided free housing in exchange for 3 months or more of service.

To volunteer periodically, join The Friends of Crater Lake, a non-profit organization founded in 1993. Members remove non-native plants, build and maintain trails, answer questions at park viewpoints, assist with special events, and more. For details, visit www.friendsofcraterlake.org. Or join the Crater Lake Ski Patrol, which has been assisting winter visitors and maintaining the park's cross-country ski trails since 1983. Members, identifiable by their bright red parkas, receive training in wilderness first aid, survival skills, search and rescue, map and compass use, and avalanche safety in exchange for at least 6 days of service each winter. To learn more, visit www.craterlakeskipatrol.weebly.com.



Buy Crater Lake License Plates

If you live in Oregon, consider choosing Crater Lake license plates for your vehicle. For a one-time charge of \$30, you can outfit your car with these beautiful plates while supporting park projects. You can purchase Crater Lake plates at any time, not just when buying a new vehicle or renewing your registration. Visit any Oregon DMV office or www.oregon.gov/odot/dmv for details.

Proceeds go into an endowment that funds the operation of the park's Science and Learning Center. The center opened in 2006 and consists of two renovated historic structures near Park Headquarters: the original Superintendent's Residence and Chief Naturalist's Residence. These buildings now provide living and working space for visiting scientists, teachers, and artists. The Science and Learning Center draws researchers and educators to Crater Lake from around the world, encouraging them to use the park as an outdoor laboratory and classroom. For more information about the Science and Learning Center and its programs, visit www.nps.gov/tlc/craterlake.



Shop in the Visitor Center Bookstores

When you shop in the Steel Visitor Center or Rim Visitor Center, all proceeds from your purchase are invested back into the park. The bookstores are operated by the Crater Lake Natural History Association, a non-profit organization established in 1942 to support the park's educational and scientific programs. The association funds a variety of important projects, including the printing of this visitor guide. Some of the bookstores' offerings are described to the left. For a complete list of merchandise and to buy items online, visit www.craterlakeoregon.org. You can also order by calling 541-594-3111.



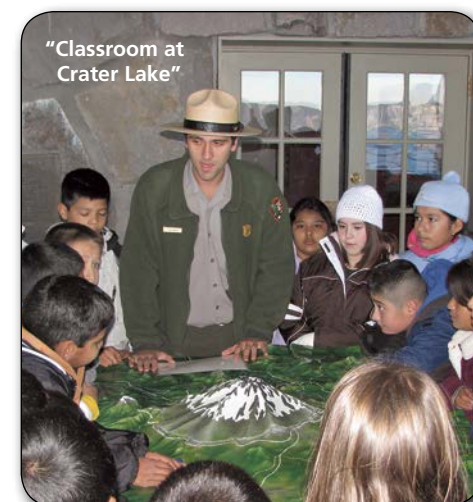
CRATER LAKE
NATURAL HISTORY ASSOCIATION



Wolves Have Returned to Crater Lake National Park!
Learn about their journey—and celebrate their arrival—with books, t-shirts, and stuffed animals available for purchase in the visitor center bookstores.

Contribute to the Crater Lake Trust

The Crater Lake National Park Trust is a nonprofit organization that raises private funds to support park projects and connect the park with surrounding communities. It helps fund, for example, field trips to the park for more than 5,000 grade-school students each year. In a program called "Classroom at Crater Lake," kids engage in hands-on science and learn about wildlife, old-growth forests, and winter ecology. For most of the kids, it's their first visit to the park. To learn more about the Trust and its activities, visit www.craterlaketrust.org. Share your love of the park by making a tax-deductible gift.



Share Your Comments

Whether you have a compliment, concern, or suggestion, we'd like to hear from you! This is your national park, and we value your input on how best to manage it. You can provide feedback in several ways. Ask for a comment form at a visitor center, send an email to craterlake@nps.gov, or write to: Superintendent, Crater Lake National Park, PO Box 7, Crater Lake, OR 97604.

Thank You!

EXPERIENCE YOUR AMERICA™



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