Catch a Rising Star

Watching the sun rise (or set) in the park can be an unforgettable experience. The overlooks on the Rim Drive, with their unobstructed views, are great places to observe the sun’s daily rituals, as well as other celestial events. For many travelers, spending dawn or dusk on the rim of Crater Lake is a highlight of their park visit. When the winds are calm, the lake becomes a perfect mirror of the sky.

Opinions differ, though, as to the best vantage points. At dawn, some people head to the West Rim—to Discovery Point, Watchman Overlook, or the top of Watchman Peak. From these outposts, the waters of the lake sometimes glow in shades of orange, pink, and purple. As soon as the sun breaks the horizon, however, seeing the lake from these places means staring into the light, and opportunities for photographs diminish. That’s why other people prefer to station themselves along the East Rim Drive (or even hike to the summit of Mount Scott) at sunrise, in order to have the sun at their back when viewing the lake.

That’s also why the most popular spots for sunset are Watchman Overlook and Watchman Peak, where you can enjoy the last rays of light on the lake and then watch the sun descend over a dozen ridgetops between the park and the Pacific Ocean.

If sunrises and sunsets don’t fit into your schedule, there are many other ways to make your Crater Lake visit memorable, meaningful, and fun. Here are 10 suggestions:

1. Circle the Lake
Rim Drive is a 33-mile (53-km) paved road around Crater Lake. More than 30 pullouts offer excellent views of the park’s scenery. Allow 2 to 3 hours (see page 5).

2. Photograph the Pinnacles
Formed by 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).

3. Visit the Sinnott Overlook
Perched on a cliff at Rim Village, this historic overlook features a dramatic view of the caldera and exhibits that explain its geologic features (see page 3).

4. Climb a Peak
The summits of Garfield Peak, Watchman Peak, and Mount Scott each offer spectacular—and very different—views of Crater Lake (see page 4).

5. Watch for Wildflowers
From late June to mid-August, flowers line many of the park’s roads and trails. Take a short stroll on the Castle Crest Trail to view the park’s premier display (see page 4).

6. Find the Phantom Ship
Anchored near the lake’s south shore is an island that seems to be sailing away. To see it, walk to Sun Notch or drive to the viewpoint named in its honor (see page 5).

7. Have a Picnic
The pullouts and picnic areas on the Rim Drive are perfect for outdoor eating. Stop by the Rim Village Cafe or Mazama Village Store for grab-and-go sandwiches.

8. Touch the Water
The trail to the lake shore is steep and can be crowded, but the water at the bottom is some of the world’s purest. Swim, fish, or simply dangle your toes (see page 2).

9. Take a Trolley Tour
See the park with those who know it best. Ranger-narrated, 2-hour tours depart daily from Rim Village, stopping at overlooks as they loop around the lake (see page 3).

10. 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.
Activities

**Backpacking**
Over 95% of the park is managed as wilderness. Although some trails and locations are closed to backcountry camping (for example, there is no camping in the summer with a view of the lake), exploring the park’s old-growth forests and volcanic landscapes can be a rewarding experience. Generally, backpackers must travel at least 1 mile from their vehicle in order to camp.

Before setting out, all backpackers must obtain a permit, in person, from the Ranger Station at Park Headquarters. (The one exception is through-hikers of the Pacific Crest Trail, who may instead sign a trail register as they enter the park.) Backcountry permits are free of charge and are available between 8 am and 4:30 pm daily. They are not available after hours or over the phone.

**Bicycling**
Bicycles are allowed on paved roads and the unpaved Grayback Road. They are not allowed on trails, or off-trail. Helmets are required for riders under 16 years of age and are strongly recommended for all cyclists. The park’s paved roads are narrow with heavy automobile traffic. The most popular trip in the park is the 33-mile (53 km) Rim Drive, featuring spectacular views but also long climbs that gain a total of 3,000 feet (1,186 meters) in elevation. For a flatter, more relaxing ride, try the paved, 11-mile (18 km) bike path around Diamond Lake, 5 miles (8 km) north of the park. The closest place to rent bikes is Diamond Lake Resort.

The park’s annual “Ride the Rim” event will be taking place on September 10 and September 17 this year. The East Rim Drive will be closed to automobiles, giving runners, bikers, and pedestrians the opportunity to enjoy 24 miles (39 km) of scenic roadway without vehicle noise and traffic. Visit www.ridetherimoregon.com to learn more.

**Feeding Animals**
(see page 4)

**Fishing**
(see page 4)

**Hiking and Climbing**
Hiking to the Godfrey Glen Trail, Lady of the Woods Overlook, Cloudcap Overlook, or hike to the top of Watchman Peak.

**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, Cloudcap Overlook, or hike to the top of Watchman Peak.

**Fishing**
Crater Lake is home to rainbow trout and kokanee salmon. Neither is native to the lake. Fishing is allowed at the bottom of the Cleetwood Cove Trail. The shoreline is rough and rocky, there are no beaches, and no lifeguards are on duty. Swimmers must stay within 100 yards (91 meters) of shore and not venture out of Cleetwood Cove. Long-distance swimming is prohibited. To prevent the introduction of non-native organisms, the use of equipment other than standard swimsuits is forbidden. Wetsuits, snorkels, fins, goggles, life jackets, and other flotation aids are not allowed, as well as other gear—such as rafts, canoes, kayaks, and paddleboards—that could serve as potential vectors for invasive species.

**Activities**

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**Feeding Animals**
Enter a field of your own to explore and learn about Crater Lake and earn virtual badges. More activities are available online. Visit www.nps.gov/crcl to watch engaging videos about Crater Lake and earn virtual badges.

**Wildlife Viewing**
The park is home to a variety of animals, but they can be difficult to spot. Many are active primarily at night or shy away from humans. The most commonly seen animals are squirrels, chipmunks, marmots, ravens, jays, and deer. Lucky observers might spot a pika, porcupine, fox, coyote, wolf, marten (a type of weasel), bald eagle, or herd of elk. Bobcats and mountain lions are present but are rarely seen. Approximately 50 black bears live in the park, but they also prefer to stay hidden. You might see one crossing a road. The only creatures that tend to pester people are mosquitoes (from mid-June through July) and yellowjacket wasps (in August and September).

**Accessibility**

Except for the Sinnott Overlook, developed areas in the park are generally accessible to individuals with mobility impairments. The most accessible path for people using wheelchairs is the paved promenade at Rim Village. The Godfrey Glen, Sun Notch, goodies near Rim Village and Mazama Campground. Pets are not allowed inside buildings, including Crater Lake Lodge and The Cabins at Mazama Village. The preceding 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.

**Junior Ranger Program**
Join the fun! Start earning a Junior Ranger activity book! They are available 24 hours a day from dispensers in front of the Rim Village Visitor Center and Mazama Village Visitor Center.

To become a Junior Ranger and earn an official badge, complete at least 7 pages as you explore the park. Then show your book to a ranger at either visitor center (see hours on next page).

**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 the bottom of the Cleetwood Cove Trail. The shoreline is rough and rocky, there are no beaches, and no lifeguards are on duty. Swimmers must stay within 100 yards (91 meters) of shore and not venture out of Cleetwood Cove. Long-distance swimming is prohibited. To prevent the introduction of non-native organisms, the use of equipment other than standard swimsuits is forbidden. Wetsuits, snorkels, fins, goggles, life jackets, and other flotation aids are not allowed, as well as other gear—such as rafts, canoes, kayaks, and paddleboards—that could serve as potential vectors for invasive species.

**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 Rights of stars! 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 appropriate footwear and carry water. Toilets are located in the parking lot at the top of the trail. Depending on snow conditions, the trail is usually open from mid-June to late October.

**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, Cloudcap Overlook, or hike to the top of Watchman Peak.

**Hunting**
Crater Lake is home to rainbow trout and kokanee salmon. Neither is native to the lake. Fishing is allowed at the bottom of the Cleetwood Cove Trail, where you’ll find a short stretch of rocky shoreline. Fishing licenses are not necessary. There are no restrictions on the size, number, or type of fish taken. Fish may be kept or kept. To prevent the introduction of other non-native organisms, the use of equipment other than standard swimsuits is forbidden. Wetsuits, snorkels, fins, goggles, life jackets, and other flotation aids are not allowed, as well as other gear—such as rafts, canoes, kayaks, and paddleboards—that could serve as potential vectors for invasive species.
Services & Facilities

This information was accurate at the time of publication but is subject to change. To find out the current status of park facilities and hours of operation, check one of the information boards located around the park.

Emergencies

Dial 911 to report any emergency, 24 hours a day. First aid is available at the Ranger Station at Park Headquarters (8 am–4:30 pm).

Restrooms

Restrooms with flush toilets and running water are open 24 hours a day at Rim Village and Mazama Campground. Visit toilets are located near all three park entrances (West, South, and North) and at 6 other places around the park. (see map on page 5).

Drinking Water

Water fountains can be found outside the Rim Village Visitor Center and Mazama Village Store. You can buy bottled water at the Rim Village Gift Shop, Annie Creek Gift Shop, and Mazama Village Store (see hours below).

Food & Dining


The Annie Creek Restaurant in Mazama Village serves pizza, burgers, and more. May 20–June 30: 11 am–8 pm. July 1–Sept. 24: 11 am–9 pm.


Crater Lake Lodge also serves meals. During times of high community Covid transmission, however, food will be available only to overnight guests of the Lodge and the Mazama Village cabins. May 13–Oct. 8:

Breakfast: 6:30–10:30 am 
Lunch: 11:30 am–3 pm for overnight guests 
Dinner: 5–8 pm (everyone) 6–10 pm (guests only) Appetizers, drinks, and desserts are also available, 3–10 pm, in the Great Hall and on the back patio.

Visitor Centers

At the park’s two visitor centers, rangers are available to answer questions and help plan your visit. The Mazama Village Visitor Center is open 9 am–5 pm daily. The Rim Village Visitor Center is open 9:30 am–5 pm daily from late May to late September. Junior Ranger activity books are available from an outdoor dispenser. The park’s souvenir passport stamp is available during business hours (it’s the same design at each location). The nonprofit Crater Lake Natural History Association sells books, maps, postcards, and souvenirs. The Steel Visitor Center at Park Headquarters, normally open year-round, is currently closed for rehabilitation. It should reopen by the end of 2022.

Exhibits

Perched on a rock ledge behind the Rim Village Visitor Center, the Sinnott Overlook has geology exhibits, a relief model, and a spectacular lake view. It’s open 9:30 am–5 pm daily from mid-June through September and 10 am–4 pm in October (weather permitting). The overlook is located down a steep, historic walkway with stairs and, unfortunately, is not accessible to people with limited mobility. At Crater Lake Lodge, exhibits on tourism and the history and renovation of the Lodge can be found on the ground floor, west of the lobby. They are available around-the-clock, May 13–October 8.

Gifts & Books

The Crater Lake Natural History Association sells books, maps, postcards, and souvenirs inside the Rim Village Visitor Center and Mazama Village Visitor Center (see hours above). Park concessioner Crater Lake Hospitality also offers a range of merchandise at the Rim Village Gift Shop (same hours as the Rim Village Cafeteria, see left), the Annie Creek Gift Shop in Mazama Village (same hours as the Annie Creek Restaurant, see left), and the Mazama Village Store (see hours at left).

Post Office

A US Post Office is open 9 am–12 pm and 1–3 pm (except Sundays and holidays) inside the Mazama Village Visitor Center.

Lost & Found

Visit the Ranger Station at Park Headquarters (8 am–4:30 pm) or call 541-594-3060.

Phone & Internet

Cell reception in the park is spotty. You may have luck at overlooks on the Rim Drive. An emergency landline can be found outside the “snow tunnel” entrance to the Administration Building at Park Headquarters. Wifi with limited bandwidth may be available at the park’s concession-run facilities.

Campgrounds

Mazama Campground has a total of 24 sites for tents and RVs. It is operated by Crater Lake Hospitality and will be open this year July 1–September 24. Senior Pass and Access Pass holders are entitled to a 50% discount on campsites. All sites are reservable in advance (www.travelcraterlake.com or 866-292-6720), with any remaining sites available on a first-come, first-served basis starting at 12 pm each day at the Mazama Village Store. If needed, you can reach the campground directly at 541-594-2255, extension 3. The campground has flush toilets, drinking water, and a dump station. Each campsite has a picnic table, fire ring, and food locker. Black bears tend to avoid the campground, but all food should be stored in a food locker or a bear box. The park’s other campground, Lost Creek Campground, is closed this year. For a list of campgrounds outside the park, visit www.nps.gov/crla.

Lodges

The park has two hotels, both operated by Crater Lake Hospitality. Historic Crater Lake Lodge, which first opened in 1915, overlooks the lake at Rim Village. It has 71 rooms and is open May 13–October 8. The Cabins at Mazama Village consist of 40 units and are open May 20–September 4. For both facilities, advance reservations are highly recommended: call 866-292-6720 or book online at www.travelcraterlake.com. For a list of options outside the park, visit www.nps.gov/crla.

Gasoline & EV

Self-service, unleaded gasoline is available at the Mazama Village Store during business hours from May 20–October 9 (see hours above). For electric vehicles is located in front of the Annie Creek Gift Shop in Mazama Village. It has one standard connector and one Tesla connector.

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—while learning about the park at the same time!

Ranger-narrated trolley tours circle Crater Lake daily. Tours begin and end at Rim Village, spend 2 hours traveling clockwise around the lake, and stop at 5 to 10 scenic overlooks, where passengers can disembark for a few minutes to enjoy the view. Tours depart hourly from 10 am to 3 pm, July through September (weather permitting).

Tickets may be purchased between 9 am and 3 pm by calling 541-882-1896 or aboard the trolley parked in the middle of Rim Village. Tickets may also be reserved online at www.craterlaketrolley.net.

The trolleys are wheelchair accessible and seat about 20 passengers. They resemble old streetcars, but they run on modern technology. Most are powered by compressed natural gas and emit 30-40% less pollution than gasoline-powered vehicles. They are owned and operated by The Shuttle Inc. of Klamath Falls.

Bird-Banding Demonstrations

Have you ever seen a bird up close? Join a ranger to learn about the park’s birds while watching scientists from the Klamath Bird Observatory mark them with identifying bands.

Programs are held most Tuesday mornings through October 4. They are free of charge, last 1 hour, involve a short walk, and take place in the vicinity of Park Headquarters. Advance registration is required, and space is limited. Register online (and learn more) at www.nps.gov/crla/planyourvisit/bird-banding.htm.

Other Ranger Programs

Additional activities will likely be offered this summer, but they have not been confirmed at the time of publication. For the latest schedule, stop by a visitor center, see flyers posted in the campground, or check one of the information boards located around the park.

Climate Chart

Most days in July, August, and September are warm and sunny. In May, June, and October, clear days alternate with periods of rain and snow. Winters are long, storms from the Pacific Ocean dump an average of 42 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

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<tr>
<th>Month</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
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<tr>
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<td>35</td>
<td>35</td>
<td>40</td>
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<td>80</td>
<td>83</td>
<td>87</td>
<td>94</td>
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<td>93</td>
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<td>3</td>
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<td>40</td>
<td>47</td>
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Celsius

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<th>Mar</th>
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<tbody>
<tr>
<td>Average Daily High (ºC)</td>
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<td>10</td>
<td>15</td>
<td>21</td>
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<td>Avg. Snow Depth (cm)</td>
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<td>7.7</td>
<td>7.1</td>
<td>6.2</td>
<td>4.4</td>
</tr>
</tbody>
</table>

Air temperature and snowfall averages are from Park Headquarters, 1931-2019. Water temperatures are from 1965-2019.
Let’s Go for a Hike!

Hi, I’m Ranger Stephanie. 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 the Ranger Station at Park Headquarters—between 8 am and 4:30 pm. Some areas are not open to backcountry camping.
- Pets are allowed on the Godfrey Glen Trail, Lady of the Woods Trail, Grayback Road, and Pacific Crest Trail. Pets must be leashed; only one pet per hiker is allowed (see page 2).
- To protect vegetation and prevent erosion, please stay on the trails.

### On the Trail Today

**Flowers, Meadow, Creek**

- Abundant Headquarters. Self-guiding meadow to the rim of Crater of Pinnacle Valley. Great growth forest, with some growth forest to a waterfall.
- The trail is rocky and slippery in places. Park architects integrated near cliff edges. Accessible to at park boundary. Accessible with assistance.
- All-terrain wheelchair users.
- Self-guiding brochures are available at the trailhead.
- Overlook.

**Easy Trails**

**Discovery Point**
- The peak’s historic fire lookout is still used by rangers today.
- 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**

<table>
<thead>
<tr>
<th>Trailhead</th>
<th>Location</th>
<th>Time</th>
<th>Description</th>
<th>Nature Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Castle Crest</td>
<td>Lady of the Woods</td>
<td>0.5 miles (0.8 km)</td>
<td>Loop trail</td>
<td>Trail passes through a forest. Accessible to all-terrain wheelchair users. Trail begins at park headquarters. Accessible to with assistance. Self-guiding brochures are available at the trailhead.</td>
</tr>
<tr>
<td>Sun Notch</td>
<td>0.7 miles (1.1 km)</td>
<td>30 minutes</td>
<td>Easy walk along the rim of Pinnacle Valley. Great views of volcanic spires. Use caution near cliffs. Trails end at park boundary. Accessible to all-terrain wheelchair users with assistance. Self-guiding brochures are available at the trailhead.</td>
<td>The Pinnacles are chimneys formed when hot ash cooled after the big eruption.</td>
</tr>
<tr>
<td>Godfrey Glen</td>
<td>0.8 miles (1.3 km)</td>
<td>30 minutes</td>
<td>Easy stroll through an old-growth forest, with some views. Accessible to all-terrain wheelchair users with assistance. Self-guiding brochures are available at the trailhead.</td>
<td>Easy walk through an old-growth forest to a waterfall: Many mid-summer flowers. Accessible with assistance, but the final ¼ mile might be too steep.</td>
</tr>
<tr>
<td>Plaikni Falls</td>
<td>1.1 miles (1.8 km)</td>
<td>1 hour</td>
<td>Easy walk through an old-growth forest to a waterfall: Many mid-summer flowers. Accessible with assistance, but the final ¼ mile might be too steep.</td>
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**Moderate Trails**

**Cleetwood Cove**
- The only legal access to the shore of Crater Lake. Strenuous Trail with a steep grade. Leading to a rocky shoreline. Page 2 for information on swimming and fishing.
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</tr>
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<tbody>
<tr>
<td>Discovery Point</td>
<td>Sun Notch</td>
<td>2.0 miles (3.2 km)</td>
<td>Roundtrip</td>
<td>The canyon is carved into a boulder along the trail.</td>
</tr>
<tr>
<td>Sun Notch</td>
<td>2.0 miles (3.2 km)</td>
<td>1 hour</td>
<td>Easy walk along the rim of Pinnacle Valley. Great views of volcanic spires. Use caution near cliffs. Trails end at park boundary. Accessible to all-terrain wheelchair users with assistance. Self-guiding brochures are available at the trailhead.</td>
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</tr>
<tr>
<td>Godfrey Glen</td>
<td>1.6 miles (2.6 km)</td>
<td>1 hour</td>
<td>Easy walk through an old-growth forest, with some views. Accessible to all-terrain wheelchair users with assistance. Self-guiding brochures are available at the trailhead.</td>
<td>Easy walk through an old-growth forest to a waterfall: Many mid-summer flowers. Accessible with assistance, but the final ¼ mile might be too steep.</td>
</tr>
<tr>
<td>Plaikni Falls</td>
<td>2.0 miles (3.2 km)</td>
<td>1 hour</td>
<td>Easy walk through an old-growth forest to a waterfall: Many mid-summer flowers. Accessible with assistance, but the final ¼ mile might be too steep.</td>
<td>Easy walk through an old-growth forest to a waterfall: Many mid-summer flowers. Accessible with assistance, but the final ¼ mile might be too steep.</td>
</tr>
</tbody>
</table>

**Strenuous Trails**

**Cleetwood Cove**
- The only legal access to the shore of Crater Lake. Strenuous Trail with a steep grade. Leading to a rocky shoreline. Page 2 for information on swimming and fishing.
- The only legal access to the shore of Crater Lake. Strenuous Trail with a steep grade. Leading to a rocky shoreline. Page 2 for information on swimming and fishing.

<table>
<thead>
<tr>
<th>Trailhead</th>
<th>Location</th>
<th>Time</th>
<th>Description</th>
<th>Nature Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Castle Crest</td>
<td>Lady of the Woods</td>
<td>2.2 miles (3.5 km)</td>
<td>Roundtrip</td>
<td>Trail is named after William Godfrey, a ranger who died in a blizzard here in 1930.</td>
</tr>
<tr>
<td>Sun Notch</td>
<td>3.6 miles (5.8 km)</td>
<td>6 hours</td>
<td>Easy</td>
<td>Easy</td>
</tr>
<tr>
<td>Godfrey Glen</td>
<td>4.4 miles (7.1 km)</td>
<td>5 to 6 hours</td>
<td>Easy</td>
<td>Easy</td>
</tr>
<tr>
<td>Plaikni Falls</td>
<td>6.5 miles (10.5 km)</td>
<td>5 months</td>
<td>Easy</td>
<td>Easy</td>
</tr>
</tbody>
</table>

**Swimming, Fishing**
- The only legal access to the shore of Crater Lake. Strenuous Trail with a steep grade. Leading to a rocky shoreline. Page 2 for information on swimming and fishing.
- The only legal access to the shore of Crater Lake. Strenuous Trail with a steep grade. Leading to a rocky shoreline. Page 2 for information on swimming and fishing.

<table>
<thead>
<tr>
<th>Panoramic Views</th>
<th>Description</th>
<th>Nature Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swimming, Fishing</td>
<td>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 early July due to snow. Use caution near cliff edges.</td>
<td>Hiker atop Garfield Peak</td>
</tr>
<tr>
<td>Mount Scott</td>
<td>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 mid-July due to snow.</td>
<td>Snowmelt, not Crater Lake, is the source of Plaikni Falls’ water.</td>
</tr>
<tr>
<td>Crater Peak</td>
<td>Moderate strenuous hike through a deep, stream-cut canyon. Lots of water, wildflowers, and sometimes wildlife. Self-guiding brochures are available at the trailhead.</td>
<td>Snowmelt, not Crater Lake, is the source of Plaikni Falls’ water.</td>
</tr>
<tr>
<td>Union Peak</td>
<td>Moderate strenuous hike through a deep, stream-cut canyon. Lots of water, wildflowers, and sometimes wildlife. Self-guiding brochures are available at the trailhead.</td>
<td>Snowmelt, not Crater Lake, is the source of Plaikni Falls’ water.</td>
</tr>
<tr>
<td>Pacific Crest</td>
<td>Moderate strenuous hike through a deep, stream-cut canyon. Lots of water, wildflowers, and sometimes wildlife. Self-guiding brochures are available at the trailhead.</td>
<td>Snowmelt, not Crater Lake, is the source of Plaikni Falls’ water.</td>
</tr>
</tbody>
</table>

**Nature Notes**
- 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.
- The trail passes through a forest blackened by wildfire in 2015.
- The park’s historic fire lookout is still used by rangers today.
- The trail is rocky and slippery in places. Park architects integrated near cliff edges. Accessible to at park boundary. Accessible with assistance.

**用水**

- 用水温度在湖的表面是60ºF (16ºC).
- 爱尔兰人到达湖的表面是60ºF (16ºC).
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 to spend at least 2 to 3 hours to enjoy the varied sights. The road is narrow, so buses and RVs should use caution. Also, please be alert for bicyclists, pedestrians, and wildlife. 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.

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 it, 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 road 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. These “fossil fumaroles” are the result of volcanic gases that rose up through a cooling ash deposit from the eruption that formed Crater Lake.

Vidae Falls
This spring fed, roadside waterfall 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.
Algae Bloom Erupts along the Shore of Crater Lake

Climate Change is Likely to Blame; Crayfish May Have Contributed

Crater Lake is one of the most pristine large lakes in the world, celebrated for its clear water and beautiful blue color. But in July 2021, researchers noticed a greater-than-usual smattering of algae along the shore of Wizard Island (see photo, top left). The bloom was not confined to Wizard Island. On July 12, researchers noticed a greater-than-usual smattering of algae along the shore of Wizard Island. They found filamentous algae enveloped many of the rocks along the shore, turning them bright yellow. "It was shocking," says Scott Girdner, the park’s lead lake researcher. "It looked like someone had colored the shoreline with a giant yellow highlighter." What triggered this unprecedented event, and what does it portend for the ecology of the lake? The first hint of trouble came on July 12, when researchers noticed a greater-than-usual smattering of algae along the shore of Wizard Island (see photo, top left). The algae had long existed as an inconspicuous component of the ecosystem. "We'd see it occasionally, in random places," recalls Girdner. "It would sometimes appear as little tufts on the rocks." When Girdner returned to the island on July 21, he was greeted by a form of the algae that looked altogether different. In the span of just 9 days, the algae had experienced a period of exponential growth, producing long filaments (see photo, top right) that engulfs the rocks to which they were attached. The bloom was not confined to Wizard Island. On July 29, Girdner and his two seasonal assistants performed a survey of the lake’s 21-mile (33-km) shoreline. They found filamentous growths of Cladophora algae at 34 of the 48 sites that they sampled. The coverage was especially dense along the eastern shore. Back at Wizard Island, which was also thickly blanketed, the average length of the algal filaments exceeded 8 inches (20 cm). "This is nuts," Girdner remembers thinking. "How could this be happening?"

Other scientists have been wondering the same thing. Over the past few decades, abnormal proliferations of filamentous algae have been popping up in many cold, clear lakes around the world. At Lake Tahoe and Lake Baikal, blooms have been linked to an increase in nutrients serving through groundwater. In the Great Lakes, non-native zebra and quagga mussels have been blame (the mussels increase light availability for attached algae by removing floating algae from the water column; they deliver nutrients—primarily phosphorus—to the algae via their fecal material; and they produce hard shells on which the algae can grow.) Elsewhere, at remote lakes in the mountains of New Zealand, China, and the western United States—lakes mostly free from direct human impact—the blooms have been harder to explain. The main driver might be climate change.

When Girdner analyzed the variables that could have prompted the bloom, one stood out. Since 1965, the lake’s temperature has increased the temperature of the lake near its surface (see graph below). A sensor is suspended at a depth of 1 meter from a weather buoy anchored above the lake’s deepest point. In July of 2021, the mean water temperature measured by the sensor was the highest of any month on record: 63.3° Fahrenheit (17.4°C). The balmier water was a consequence of record-high air temperatures—the hottest July at Park Headquarters since record-keeping began in 1931. It was merely a coincidence that the explosive growth of Cladophora algae in mid-to-late July corresponded with the warmest waters ever observed in Crater Lake? "It doesn’t think so, although additional factors may have been involved.

It’s possible, for example, that non-native crayfish helped create the conditions for the bloom to occur. Crayfish, while indigenous to Oregon, did not exist in Crater Lake until 1915, when they were stocked for food for the trout and salmon that were similarly introduced. This century—spurred by warming water temperatures—the crayfish population has suddenly ballooned. Crayfish now patrol along the shores of Crater Lake, preying on the cornucopia of snails, insects, worms, and amphitrichs that live just below the surface. Some of these organisms—snails and caddisfly larvae, in particular—are algae eaters. They graze on the algae attached to submerged rocks, controlling the algae’s growth. Studies conducted by Girdner show that when crayfish move into an area, the biomass of the organisms decreases by an average of 95%—and the biomass of the attached algae multiplies by a factor of 15.

With crayfish now permanently ensconced in Crater Lake, and with our planet continuing to warm, will filamentous algae blooms become a regular occurrence here? If so, what effect might they have on the health of the lake? “It’s prime to happen again,” says Girdner. “But the potential impacts are unknown. Right now, we have many questions but few answers.” Fortunately, Cladophora species do not produce toxins, so waders and swimmers at Cleardale Cove have nothing to fear, except for a more slippery shoreline—and one that is perhaps less photogenic. If nothing else, the “greening” of Crater Lake is a visually disturbing warning that transformative changes to the lake’s ecology might be on the horizon.

Crayfish May Have Contributed to the Shore of Crater Lake

Crater Lake is getting warmer. Since 1965, when scientists began keeping track, the water at the lake’s surface has warmed by nearly 6° Fahrenheit (3.3°C). The algae bloom of 2021 coincided with the warmest July water temperatures on record.

Scott Girdner, a native of Yreka, California, has been employed as a biologist at Crater Lake since 1995. You can learn more about his work and the park’s long-term lake monitoring program at www.nps.gov/crla.

The Floating Algae Bloom of 2016

For a few days in September of 2016, one of Crater Lake’s coves turned the color of pea soup. A proliferation of floating algae clouded the normally clear waters along the lake’s north shore. The bloom, although short-lived and not nearly as widespread as the filamentous algae bloom of 2021, was a landmark event and an indicator that the lake may be on the cusp of profound ecological change.

Researchers noticed the discolored water on the morning of September 27, near the Cleardale Cove boat docks. They collected a water sample, which turned out to be teeming with dinoflagellates—tiny algae that have the ability to swim. Dinoflagellates are numerous in Crater Lake, especially toward the end of the summer. They use their mobility to migrate toward warm surface waters when the weather is calm. (When the wind blows, they get mixed into the water column, not being strong enough swimmers to fight against the waves.) Although it’s not clear what triggered the Cleardale Cove bloom, the conditions in late September were certainly ripe for dinoflagellates to gather and multiply there. The weather was sunny, and the winds had been calm for several days. Still, park scientists were stunned to see microscopic algae present in concentrations high enough to alter the color of the water.

If there’s a silver lining, it’s that the algae living in Crater Lake are not toxic. In saltwater environments, some species of dinoflagellates are known to produce harmful “red tides” that can kill fish, birds, and even mammals. Another positive is that since 2016, no further blooms of floating algae have been seen or detected. In 2018, Girdner and his team installed dissolved oxygen sensors, capable of monitoring algal productivity, at 5 shallow-water sites around the lake. If—or more likely, when—future blooms occur, we should be able to discern them, even if no one is there to take a photo.
How deep is Crater Lake? 
Crater Lake is 1,943 feet deep. It’s the deepest lake in the USA (100 feet deeper than Lake Tahoe, which ranks 2nd). It’s the 9th deepest lake in the world and the deepest in the world formed by volcanic activity.

Where does the water come from? 
About 83% of the water comes from rain and snow falling directly on the surface. The rest is run-off from precipitation landing on the slopes above the lake.

How clean & clear is the lake? 
How do we know the eruption happened 7,700 years ago? 
Mount Mazama’s caldera-forming eruption produced pyroclastic flows of ash and pumice that flattened the forests growing on the mountain. The age of the eruption has been determined by carbon-dating tree remains buried in the ash deposits.

Is Wizard Island the former summit of Mount Mazama? 
Wizard Island is not the top of the old mountain; it’s a newer volcano—a cinder cone—that erupted out of the lake up 7,300 years ago. Three other eruptions have occurred in the lake since its formation. All the others have been small eruptions, but the recent one was a lava dome that grew to within 95 feet of the surface, 4,800 years ago.

Could Mt. Mazama erupt again? 
According to geologists, future eruptions here are almost guaranteed. This is one of 18 volcanic areas in the USA that the US Geological Survey considers to pose a “very high threat” to human life and property. A major eruption, though, is not likely to happen again for thousands of years; the magma reservoir beneath Crater Lake has not had sufficient time to recharge itself.

How does the water level vary? 
The level of Crater Lake fluctuates just a few feet each year. Winter storms make it rise a little; dry summers cause it to fall. The lake experiences about twice as much precipitation as evaporation, but the surface remains flat because water continuously seeps out through a porous layer of rock along the north rim. Crater Lake is just like your bathtub—halfway up the side, there’s a drain! Water leaks from the lake at a rate of 2 million gallons every hour. It goes deep underground and is not believed to feed any nearby rivers or springs.

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How did Crater Lake form? 
Crater Lake occupies the shell of Mount Mazama, a collapsed volcano. The volcano was 13,000 feet tall, but its summit imploded after a major eruption 7,700 years ago. The eruption was about 100 times the magnitude of the 1980 eruption at Mount St. Helens.
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 to help staff visitor centers and present interpretive programs. Opportunities are advertised several times each year at www.volunteer.gov. Volunteers are provided free housing in exchange for 3 months of service. To volunteer periodically, join The Friends of Crater Lake, a nonprofit whose members help with special events and operate a winter information desk at Rim Village. Learn more at www.friendsofcraterlake.org. Or join the Crater Lake Ski Patrol, whose members assist winter visitors and maintain the park’s ski and snowshoe trails. For more information, visit www.craterlakeski patrol.com.

Report Your Wildlife Sightings
Scientists need your help! If you spot any interesting animals during your visit or witness any unusual behavior, please let us know! Your observations will help us learn which animals live in the park and how they use it. Species reported recently include the northern saw-whet owl, police-car moth, pine marten, mountain lion, and gray wolf. To share your sighting, email craterlake@nps.gov. Let us know the date and precise location of your encounter, a detailed description of what you saw, and 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!

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 them at any time, not just when buying a new vehicle or renewing your registration. Visit any DMV office or www.oregon.gov/dot/dmv for details. Proceeds go into an endowment that funds the operation of the park’s Science and Learning Center, which provides living and working space for visiting scientists, teachers, and artists. The Center draws researchers and educators to Crater Lake from around the world, encouraging them to use the park as an outdoor laboratory and classroom. To learn more, visit www.nps.gov/glcr/craterrake.

Contribute to the Crater Lake Trust
The nonprofit Crater Lake National Park Trust raises private funds to support park projects and connect the park with surrounding communities. Each year, for example, it helps fund field trips to the park for more than 5,000 students. In a program called “Classroom at Crater Lake,” kids engage in hands-on science and learn about wildlife, old-growth forests, and winter ecology. Learn more at www.craterrlaketrust.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! To provide feedback, send an email or letter to the park’s superintendent (see addresses on page 2).

In Case You Missed It....
Black Bears Tracked by GPS
Crater Lake National Park is home to around 50 black bears. Until a decade ago, little was known about their movements. In the summer of 2011, 10 bears were outfitted with GPS collars. The collars recorded each bear’s position once every two hours. In 2013, biologists retrieved the collars (which had been programmed to drop off after two years) and downloaded the data.

One goal of the study was to understand the size of each bear’s home range (the area where it spent the majority of its time). The females had an average home range of 21 square miles (53 km²) and tended to stay in or near the park. The males, on the other hand, had home ranges averaging 466 square miles (1,206 km²) — more than 20 times as large! Each fall, the males traveled to lower-elevation areas outside the park, presumably to gorge on acorns and fatten themselves up for the winter. They left the park in late summer and returned by the onset of winter (see map, below right). Another project goal was to learn when and where the bears hibernated. No matter how far they roamed, all of the bears returned to the park to den. The GPS data was not precise enough to pinpoint the dens, but biologists did manage to find two of them — both in giant ponderosa pines hollowed out by fire (but still alive). The amount of time spent in hibernation averaged 5 months. The majority of the bears entered their dens in November and emerged in April.

Overall, the park’s black bears seem to be doing well. With so many species across the globe under threat or in decline, it is reassuring to know that some wild animals are still thriving in our modern world.

7 females and 3 males were trapped, tranquilized, fitted with GPS collars, and weighed. This female was the smallest, at 120 pounds (54 kg). The heaviest was a 285-pound (129-kg) male. To keep them relaxed and comfortable, they were blindfolded and given oxygen.

Volunteer Ski Patrollers

Park visitor Kari Bertram spotted this Sierra Nevada red fox in Mazama Village. See page 7 to learn about the plight of these rare carnivores.

The bears avoided places frequented by people. This female’s home range encompassed the campground, but she never entered it. The circles represent her GPS positions from July & August of 2012 & 2013.

In the fall, the 3 male bears ventured far outside the park, presumably to feed on acorns. One traveled nearly all the way to Interstate 5 and made a loop of more than 200 miles (322 km).