

Upper image: Panoramic photograph taken from visitor overlook on The Watchman by Peter Dartnell. View is to the east. Digital photographic processing by Eleanor Ramsey.

Lower image: Digital perspective view of generalized geologic map of the lake floor draped over shaded-relief image of 5-m bathymetry. Illuminated from 25° azimuth and 45° elevation. Created with ArcInfo and USGS perspective view calculation program. Scale varies with distance.

CRATER LAKE REVEALED

By

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Wizard Island cinder cone is flanked by forested partially drowned lava flows erupted while Crater Lake was filling. photo by Charles R. Bacon.



Phantom Ship is a remnant of resistant lava within the oldest part of Mount Mazama above lake level. photo by Charles R. Bacon.



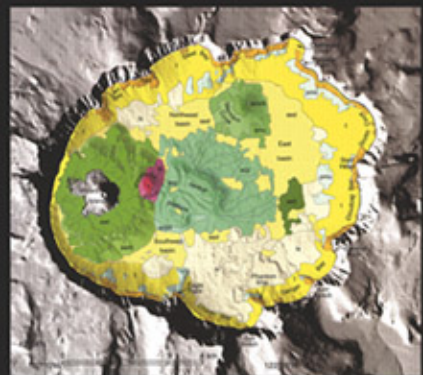
Lava rests on the bench known as Chaska slide, a landslide block arrested in its descent into Chaska Bay. photo by Charles R. Bacon.

Crater Lake, Oregon

Around 500,000 people each year visit Crater Lake National Park in the Cascade Range of southern Oregon. Volcanic peaks, evergreen forests, and Crater Lake's incredibly blue water are the park's main attractions. Crater Lake partially fills the caldera that formed approximately 7,700 years ago by the eruption and subsequent collapse of a 12,000-foot volcano called Mount Mazama. The caldera-forming or climactic eruption of Mount Mazama drastically changed the landscape all around the volcano and spread a blanket of volcanic ash at least as far away as southern Canada.

Prior to the climactic event, Mount Mazama had a 400,000 year history of cone building activity like that of other Cascade volcanoes such as Mount Shasta. Since the climactic eruption, there have been several less violent, smaller postcaldera eruptions within the caldera itself. However, relatively little was known about the specifics of these eruptions because their products were obscured beneath Crater Lake's surface. As the Crater Lake region is still potentially volcanically active, understanding past eruptive events is important to understanding future eruptions, which could threaten facilities and people at Crater Lake National Park and the major transportation corridor east of the Cascades.

Recently, the lake bottom was mapped with a high-resolution multibeam echo sounder. The new bathymetric survey provides a 2m/pixel view of the lake floor from its deepest basins virtually to the shoreline. Using Geographic Information Systems (GIS) applications, the bathymetry data can be visualized and analyzed to shed light on the geology, geomorphology, and geologic history of Crater Lake.



Generalized geologic map of the floor of Crater Lake, Oregon.



Selected References

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