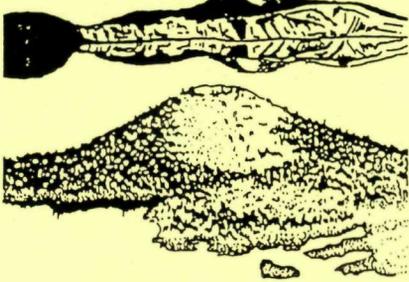


# Crater Lake

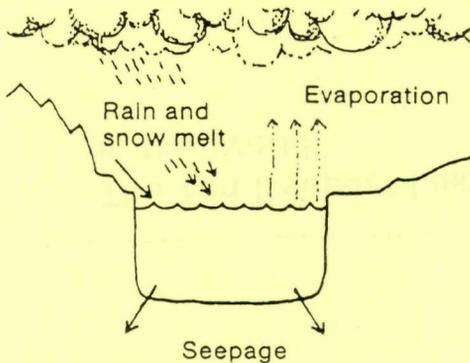
National Park  
National Park Service  
U.S. Department of the Interior

## 1,932 Feet Crater Lake



Crater Lake is located in southern Oregon on the crest of the Cascade Range, 100 miles east of the Pacific Ocean. It lies inside a caldera created when the 12,000 foot Mt. Mazama collapsed approximately 7,700 years ago. The slopes now rise to a height of 8,156 feet above sea level. Rain and melted snow averaging 69 inches annually provide the source of water. It is estimated that if the historical climate of the area were the same as today's climate, it would have taken between 600 and 800 years for the lake to have filled to its present depth of 1,932 feet.

## Historic Lake Levels



Precise dates have not been determined for the formation of Wizard Island and the submerged Merriam Cone but it is apparent that each were partially formed above water. These formations and others helped seal the basin. Fluctuation of the water level over the past 75 years ranges from one to three feet per year. The maximum variation is recorded at 16 feet in one year. The highest recorded level was reached in 1958 when the water level rose 6,179 feet above sea level. The lowest recorded level occurred in 1942 when the water dropped to a level of 6,163.2 feet. The relative stability of the water level is due to a balance of input and output. Input consists of precipitation and scant run-off drainage. Output consists of evaporation and seepage. Seepage occurs primarily through pyroclastic, agglomerate, and glacial moraine formations.

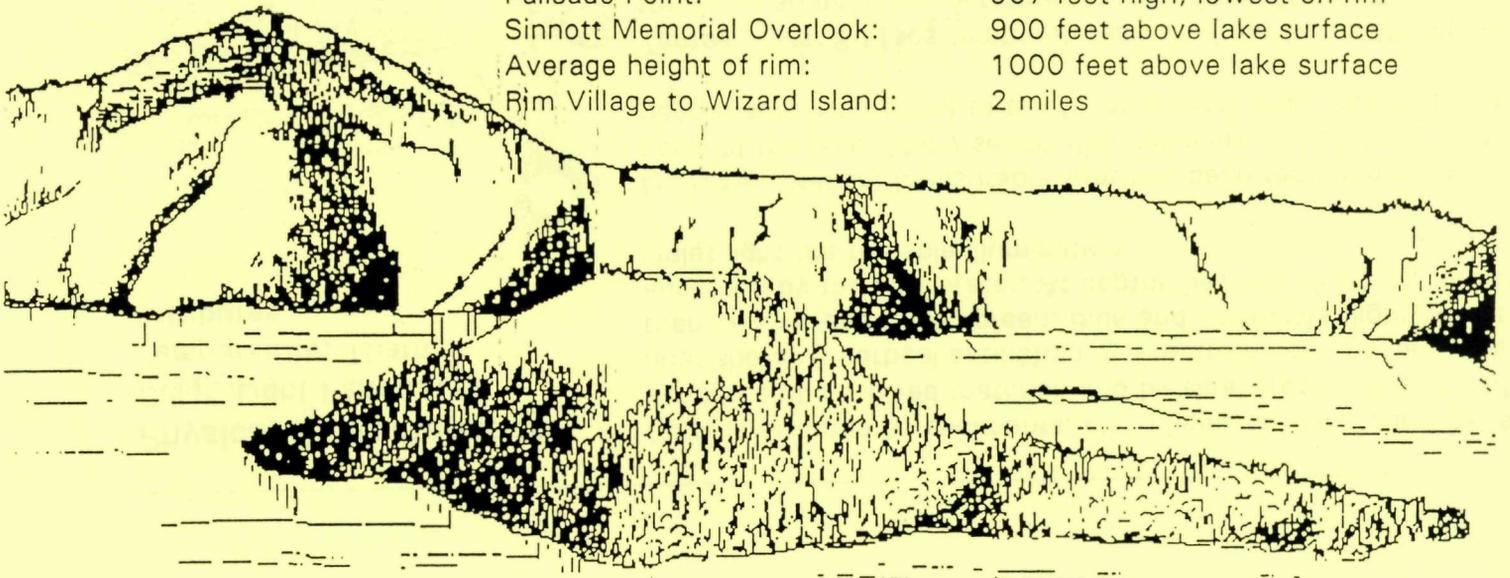
## Prehistoric Lake Levels

Speculation and study has led to several points regarding prehistoric lake levels. Mature trees growing near the present water level and the absence of raised benches around the rim furnish proof that Crater Lake could not have been appreciably higher for the last 200 years. The blocky lava flows west of Wizard Island were formed approximately 1,000 years ago, as evidenced by trees 700 to 800 years old, indicating also that the flows were formed above water.

## Lake Statistics

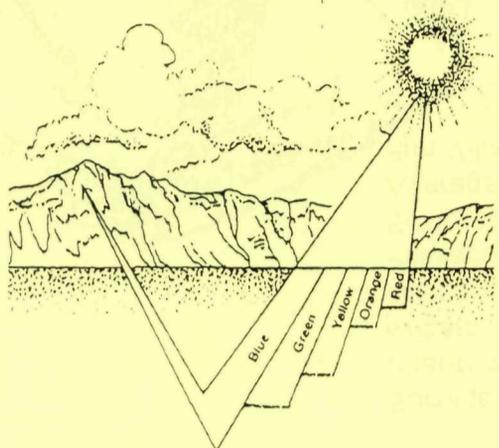
Crater Lake is the deepest lake in the United States. It is the second deepest lake in North America and the seventh deepest in the world.

Greatest depth:	1932 feet
Average depth:	1500 feet
Shallowest depth:	15 to 25 feet at Phantom Ship dike 30 to 60 feet at Skell Channel
Lake surface elevation:	6176 feet above sea level
Widest point:	6.02 miles (Discovery Point to Grotto Cove)
Narrowest point:	4.54 miles (Dutton Cliff to Llao Rock)
Surface area:	21 square miles
Phantom Ship:	167 feet above the surface
Wizard Island:	764 feet above the surface
Hillman Peak:	1,980 feet high; highest on rim
Palisade Point:	507 feet high; lowest on rim
Sinnott Memorial Overlook:	900 feet above lake surface
Average height of rim:	1000 feet above lake surface
Rim Village to Wizard Island:	2 miles



## Physical Characteristics:

### Color, Light Penetration, Temperature, Thermal Attributes



*Color* is affected by sediments, cloud layering, wind currents, suspended and dissolved material, and by algal growth and limited depth near shore. A vertical extinction of spectrum color occurs - first red, then yellow, and finally green. Blue and ultra-violet light do not get absorbed by the lake water. At depths beyond 350 feet, blue and ultra violet light are the sole illumination.

*Light Penetration:* Measurable light has been recorded in the deepest parts of the lake. Many secchi disk readings of 120 foot clarity have been made. That's five to ten times greater than most mountain lakes

*Temperature:* Surface temperatures vary from 32 to 65 degrees F. with the usual summer temperatures ranging from 50 to 58 degrees. Below 350 feet, the temperature is a constant 38 degrees.

*Thermal stratification* is minimal. From the 15 to 65 foot depth, there is often a 1 degree F. drop per 1.5 feet. Regional and partial thermoclines may occur at certain times and places. However, they are readily destroyed by wave action and vertical currents. The lake rarely freezes over. The most recent freeze occurred in 1949, lasting almost three months. In 1983, 98% of the lake froze over.

## Water Quality and Circulation

*Reasons for Pure Water:* The lake is a relatively young body of water. There are no streams flowing in from outside the caldera. There is a possible loss of dissolved minerals through seepage. The basin forming rocks are relatively insoluble.

*Water circulation* is not very well understood. Oxygen saturation occurs at the bottom yet it is not strongly indicative of circulation. Biomass is small so little diffusion is necessary to maintain this saturation.

## Other Environmental Restrictions

Precipitous walls inhibit intrusion by many plants and animals. Low amounts of carbonates inhibit development of a large number of shelled animals. There is a well developed diatom flora, due to high silica content and high alkalinity of the water.

Most lake sediments are transported from nearby slopes. Both inorganic and organic elements are represented, the latter including a significant amount of pollen. Seventy percent of the pollen is from pine trees, although mountain hemlock is dominant around the rim. Mosses and diatoms constitute most of the sediment formed within the water. Colloidal clay adds to the impermeability in some parts of the basin.

## The Ten Deepest Lakes in the World

<u>Name</u>	<u>Location</u>	<u>Depth</u>
Baikal	Siberia, Russia	5369 feet (1637 m)
Tanganyika	Africa (Tanzania, Zaire, and Zambia)	4708 feet (1435 m)
Caspian Sea	Iran and Russia	3104 feet (946 m)
Nyasa	Africa (Mozambique, Tanzania, and Malawi)	2316 feet (706 m)
Issyk Kul	Central Asia (Kyrgyzstan)	2297 feet (700 m)
Great Slave	Canada (Northwest Territories)	2015 feet (614 m)
Crater Lake	United States (Oregon)	1932 feet (589 m)
Lake Tahoe	United States (Nevada and California)	1685 feet (514 m)
Lake Chelan	United States (Washington)	1419 feet (433 m)
Great Bear	Canada (Northwest Territories)	1356 feet (412 m)