

Go Jump in the Lake

Crater Lake

1,943 feet deep
20.6 square miles

Average Human Volume

2.176 cubic feet

Population

7,800,000,000 people

Total volume increase from population

$$\begin{aligned}
 16,972,800,000 \text{ cubic feet} &= 7,800,000,000 \times 2.176 \\
 1 \text{ cubic mile} &= 147,197,952,000 \text{ cubic feet} \\
 16,972,800,000 \text{ cubic feet} &= 0.11530595208281200 \text{ cubic miles}
 \end{aligned}$$

Water Rise - spread over 20.6 square miles

$$\begin{aligned}
 0.11530595208281200 \text{ cubic miles} & \\
 \text{divided by } 20.60 &= 0.0055973763146995900 \text{ miles rise in water} \\
 1 \text{ mile} &= 5,280 \text{ feet} \\
 0.0055973763146995900 \text{ miles} &= \mathbf{29.5541469416138000 \text{ feet rise in water}}
 \end{aligned}$$

Cross Check Answer

$$\begin{aligned}
 \text{Area of a Circle } A &= \text{Pi} \times r^2 = 20.6 \text{ square miles} \\
 r &= \sqrt{A/\text{Pi}} \\
 r &= 2.5606998370340300 \text{ miles}
 \end{aligned}$$

$$\begin{aligned}
 \text{Volume of a cylinder } &= \text{pi} \times r^2 \times h = 0.1153059520828120000 \text{ cubic miles} \\
 r &= 2.56069983703403000 \text{ miles} \\
 h &= 0.0055973763146995900 \text{ miles rise in water} \\
 &= \mathbf{29.5541469416138000 \text{ feet rise in water}}
 \end{aligned}$$

