

## Three-Day Grand Canyon Flood Aims to Restore Ecosystem

### NATIONAL GEOGRAPHIC NEWS

REPORTING YOUR WORLD DAILY  
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Four arcs of water unleashed from a dam coursed through the Grand Canyon in a flood meant to mimic the natural ones that used to nourish the ecosystem by spreading sediment.



AP Photo

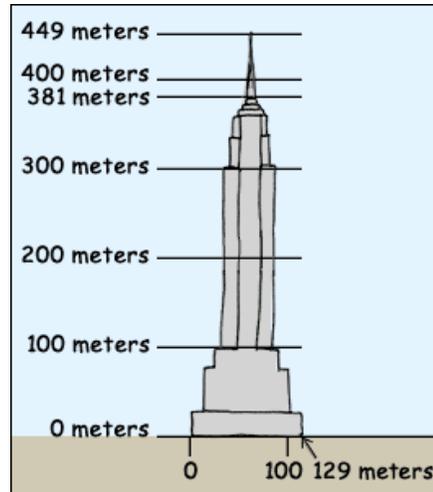
More than 300,000 gallons (more than a million liters) of water per second were released from Lake Powell above the dam near the Arizona-Utah border. That's enough water to fill the Empire State Building in 20 minutes, said Interior Secretary Dirk Kempthorne. "This gives you a glimpse of what nature has been doing for millions of

years, cutting through and creating this magnificent canyon," Dirk said after he pulled the lever Wednesday, releasing the water from Glen Canyon Dam, upstream from Grand Canyon National Park.

The water gushed from two of four giant steel tubes in parallel arcs into the Colorado River. By afternoon, water poured from all four tubes, creating a churning pool beneath the sheer, sandstone canyon walls rising hundreds of feet. The water level in the Grand Canyon rose 15 feet (4.6 meters) in some places. Officials hope water from the three-day, controlled flood will leave behind sediment and restore sandbars as it goes back to normal levels. Officials have flooded the canyon twice before, in 1996 and 2004.

Before the dam was built in 1963, the river was warm and muddy, and natural flooding built up sandbars that are essential to native plant and fish species. The river is now cool and clear, its sediment blocked by the dam.

The change helped speed the extinction of four fish species and push two others, including the endangered humpback chub, near the edge. Shrinking beaches have led to the loss of half the camping sites in the canyon in the past decade. Since Glen Canyon Dam was built, 98 percent of the sediment carried by the Colorado River has been lost, Grand Canyon National Park Superintendent Steve Martin.



New York State Education Department

Grand Canyon Trust, a Flagstaff-based group has been critical of the federal Bureau of Reclamation's management of the dam, and calling for more regular high flows. Scientists will document habitat changes and determine how backwater habitats are used by the chub and other fish. Another study will look at how higher water flows affect the aquatic food base.

1. In paragraph form, compare and contrast the consistency of the Colorado river as well as the ecosystem of the surrounding areas before and after 1963.
2. The Empire State Building consists of 79,288 square feet (7,240 meters) or about two acres. East to west, 424 feet (129 meters), north to south, 187 feet (Ref: [http://www.esbnyc.com/tourism/tourism\\_facts.cfm](http://www.esbnyc.com/tourism/tourism_facts.cfm)). Given the approximate dimensions above, determine formula and the figure in which the building is built upon.
3. The Empire State Building was completed on November 13, 1930. The building alone costs \$24,718,000 at a time when gas was ten cents per gallon and the average annual income was about \$1,428. With a 2006 average annual income estimated at roughly \$48,201 by what percentage would the cost of constructing the building increase assuming it were built in 2006 as opposed to 1930?
4. Given the fact that this historical building contains a volume equivalent to 37 million cubic feet, simply design an algebraic equation to accurately determine the total consumption after three full days of flooding.
5. Using a series of proportions, duplicate the illustration above in feet as opposed to meters.
6. Upon completion of this assignment, how far have we progressed through the 2007-08 series of *The Daughtry Times*<sup>®</sup>? Express your answer as a fraction, decimal, percentage, and pie chart.
7. Complete *The Daughtry Times*<sup>®</sup> "Writing Guidelines" checklist on all questions requiring a written response.
8. Complete *The Daughtry Times*<sup>®</sup> "Preliminary Reading Guidelines" checklist prior to reading the passage.
9. Using contextual clues only, explain the meaning of the italicized words: *aquatic*, *sediment*, *ecosystem*, *churning*, and *mimic*. Additionally, use each in a sentence to demonstrate further comprehension.
10. In paragraph form, explain at least five legitimate and educational purposes behind *The Daughtry Times*<sup>®</sup>.