



# Coralville Lake

2850 Prairie Du Chien Road, Iowa City, IA 52240  
Iowa River

**U.S. ARMY CORPS OF ENGINEERS**

**BUILDING STRONG®**

**Reservoir Operations** – Coralville Lake, built and maintained by the U.S. Army Corps of Engineers, Rock Island District, is operated as a multi-purpose reservoir. The primary purpose authorized by Congress is flood risk management for areas below the Lake. However, the lake must also be operated to ensure its flood-control pool does not impact areas above the lake. Other purposes include recreation and conservation. Coralville Lake maintains a conservation summer pool to augment low flows during drought and implements a fall pool raise to accommodate migrating bird species.



Coralville dam is built to stringent engineering standards to ensure it will withstand record flood events. The dam is under observation to ensure its structural integrity and safety.

During normal operating conditions, the Corps evaluates pressure and visually inspects the dam on a regular basis. The dam is visually inspected several times a day during flood events. Piezometers, permanently located at different elevations within the dam, are used at some locations. A piezometer measures internal hydrostatic pressures of the dam. During flood events, piezometers are evaluated daily. The dam is designed to withstand enormous pressures and water levels. Minor erosion adjacent to the outlet works can occur during major flood events but does not impair the structural integrity of the dam.

Coralville dam is operated to conform to a strict, standard regulation plan that is coordinated by the Corps of Engineers with local, state and federal agencies with water resources responsibilities. This standard includes regulation of releases during flood events.

Snowmelt during winter and spring, and rain runoff throughout the year, enter the lake from a 3,084 square-mile watershed/drainage area above the lake. In the spring, the lake pool level is maintained to allow for snowmelt runoff, and for predicted and actual rainfall, to minimize downstream flooding. The pool level will occasionally fluctuate to prepare for such runoff and for National Weather Service rainfall predictions. The pool level is also maintained to ensure minimal bank erosion which contributes to sedimentation on the lake floor, adequate summer water supply, continued river flow below the lake, conservation purposes, and for Iowa and surrounding areas recreational opportunities.

Under normal, non-flood conditions, the lake releases water through its outlet channel located at the base of the dam. Typically the outflow of the reservoir matches the inflow as long as the pool can be maintained. The outlet channel is a single 350'-long circular concrete conduit, gated 23 feet in diameter, located at the east end of the dam. The control structure is located at the upstream end of the conduit and houses three 8.33' x 20' gates, which have the capability of releasing a maximum outflow of 20,000 cubic feet of water per second (cfs), approximately 157,000 gallons per second, when the reservoir is nearly full and all the head pressure from the high lake level is pushing water out the conduit. A stilling basin is provided to dissipate the energy of the discharge from the outlet conduit.

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During high inflow conditions, the pool level will rise as releases are kept low to minimize downstream flooding. In this situation, inflows typically exceed outflows while flood waters are being stored. As the pool rises, the water level will eventually reach the lake's flood-control pool level. When the lake pool level exceeds full flood control level, Coralville Lake will release water through its conduit pipe and over the spillway.

The spillway is designed to pass excessive inflows when the lake exceeds its flood-control pool. Without a spillway, the lake could not be operated to release large inflows and the water levels would continue to rise. High lake water levels could cause overtopping of the dam and possibly cause erosion of the downstream side of the structure.

During flood control operations, weather parameters are evaluated on an hourly basis to consider rainfall in the drainage area above the lake; rainfall below the lake; and National Weather Service rainfall predictions over a 24-hour period. This information is used by the Corps to anticipate inflows to the lake and make adjustments to release rates to conserve flood storage capacity and minimize both up-river and down-river flooding.

The Corps of Engineers may also alter releases when water levels in the lake threaten private property. The Corps has secured the rights of private land owners above the lake to operate the pool at a specific elevation. When the lake approaches that level, the Corps must release water to ensure property above that elevation is not flooded.

## **Coralville Lake at a Glance**

Coralville Lake is located on the Iowa River immediately upstream from Iowa City. It was completed in 1958. The dam is an earth filled-structure 1,400-feet long, 100-feet high, and 22-feet wide at the top. The dam has a 500-foot wide concrete spillway located near the top of the dam at the 100-year flood elevation of 712-feet National Geodetic Vertical Datum (NGVD) 29. A 3,084 square-mile watershed flows into Coralville Reservoir.

During spring, the pool elevation is maintained at the conservation pool level of 679' NGVD29 to allow for snowmelt runoff and for predicted and actual rainfall to minimize downstream flooding, and associated environmental benefits.

In summer, the pool is raised to 683' for the authorized project purposes of low flow augmentation, fish & wildlife and recreation. At the normal, summer-pool elevation of 683' NGVD29, Coralville has 5,430 surface acres and stores 28,100 acre-feet of water (9.16 billion gallons) for a distance of 23 miles upstream from the dam. The summer pool level occupies 6.7% of Coralville's 100-year flood level storage capacity.

In the fall, the pool elevation is raised to 686' NGVD29 to accommodate migrating bird species and provide fish and wildlife benefits.

At the 100-year flood-storage-pool elevation of 712' NGVD29, Coralville has 24,800 surface acres and stores 421,000 acre-feet of water (137.18 billion gallons) for a distance of 41.5 miles upstream from the dam.

The first time water was released over the spillway was July 5, 1993, during the 1993 flood.

The record high pool elevation at Coralville Lake was 717.02 feet on June 15, 2008.

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Visit Coralville Lake on the Web @ <http://www.mvr.usace.army.mil/Missions/Recreation/CoralvilleLake.aspx>.

For more information about reservoirs operated by the Rock Island District, visit us on the Web @ <http://www.mvr.usace.army.mil/Media/FactSheets.aspx>

UPDATE: October 2012

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