



# Coralville Lake

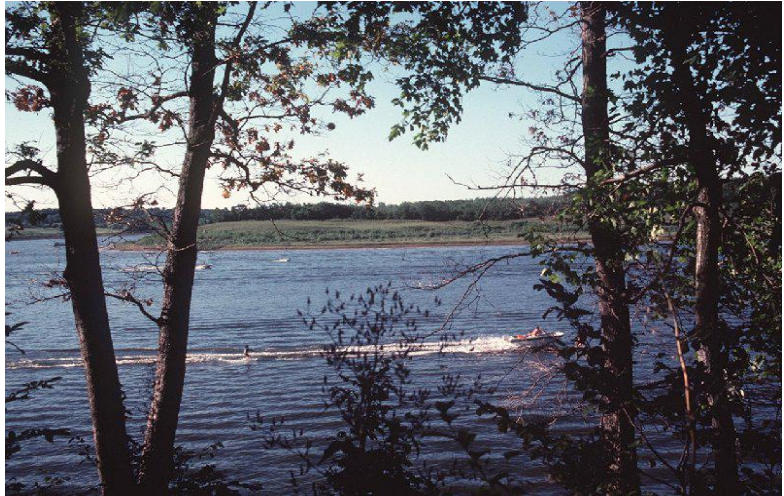
2850 Prairie Du Chien Road, Iowa City, IA 52240  
Iowa River

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

**BUILDING STRONG®**

## Coralville Lake Regulation Manual Modification to Regulations

A Revised Definite Project Report was submitted to the Chief of Engineers on April 1, 1948, recommending construction of the Coralville Dam and Reservoir at the Turkey Creek site. The frequency and magnitude of damaging floods, which occurred since House Document 259, 74th Congress, 1st Session was published in 1928, dictated that greater storage be provided than the 400,000 acre feet recommended in the 1928 report. The Revised Definite Project Report (1948) therefore recommended that the reservoir be designed to store 492,000 acre feet of water at the spillway crest elevation 712 feet, National Geodetic Vertical Datum (NGVD), and have a conservation pool elevation of 670 feet, NGVD. The reservoir storage was to be subdivided as follows:



- 475,000 ac-ft - Flood Control
- 17,000 ac-ft - Conservation, Recreation, Low-Flow Augmentation, and related purposes

The flood control storage allocation (1948) was equivalent to 2.89 inches of runoff from the basin above the dam. The conservation pool would provide water for such purposes as low-flow augmentation, conservation of fish and wildlife and recreation. The *Revised Detailed Project Report* was approved by the Chief of Engineers on 27 September 1948. Construction began in 1949 but was interrupted by the Korean conflict between 1950 and 1954, and completion of the project was delayed until 1958. Prior to completion of the project it was determined that the conservation pool at elevation 670 feet, NGVD, would not provide the necessary storage for low-flow augmentation.

The droughts that had been experienced during the period from 1903 to 1956 would require more than the 17,000 acre feet of water to maintain a minimum release of 150 cubic feet per second (cfs). Design Memorandum No. 17, entitled *Conservation Storage*, justified the need for additional storage for low-flow augmentation. This design memorandum recommended a conservation pool level of 680.0 feet, NGVD and contained 53,750 acre feet of storage. The 680.0 conservation pool level was approved and was the summer conservation pool level from the time regulation of the reservoir commenced in September 1958 until 1991.

Initially, several regulation plans were studied, but after careful study using landowner and public input, a regulation plan called Plan 7 was recommended, approved and was used to begin regulation in October 1958. Under this plan the conservation pool was held at elevation 680 from 1 July to 1 February. It was then lowered on 1 February to elevation 670 feet, NGVD, in advance of the normal flood season to provide greater flood storage. Under Plan 7, a maximum outflow from the reservoir was 10,000 cfs during the non-growing season of 15 December to 1 May and 8,500 cfs during the growing season from 1 May to 15 December.

Coralville Lake was first regulated for flood control during the minor spring flood of 1959 and again during a major flood that occurred in the spring of 1960. Downstream landowners objected to the high growing season release rates of 8,500 cfs. They said that this flow flooded much of their marginal and sub-marginal cropland between the

---

**U.S. ARMY CORPS OF ENGINEERS – ROCK ISLAND DISTRICT**  
CLOCK TOWER BUILDING, P.O. BOX 2004, ROCK ISLAND, IL 61204-2004  
Corporate Communications Office, (309) 794-5274, [www.mvr.usace.army.mil](http://www.mvr.usace.army.mil)

dam and Columbus Junction, Iowa. With both public concerns and congressional involvement, the Corps of Engineers initiated a study to determine the effects of various release rates. While these studies of reservoir regulation were being made (1961-1962), the reservoir was regulated under an interim regulation plan. This interim plan established the maximum growing season releases between 5,000 and 6,500 cfs depending on the available flood storage remaining in the reservoir.

As a result of these studies and public input, a revised regulation plan was recommended to the Chief of Engineers and implemented in the spring of 1963. This plan was designated Plan 8 and was approved by the Chief of Engineers on 10 April 1963.

Plan 8 provided for a non-growing season release rate of up to 10,000 cfs from 15 December to 21 April. It provided for a transition period from 21 April to 1 May when the maximum release rate was set between 6,000 and 10,000 cfs depending on the reservoir elevation on 21 April. In addition, it provided for a growing season maximum release rate between 4,000 and 6,000 cfs from 1 May to 15 December, which depended on the reservoir elevation on 1 May. The pool regulation schedule for Plan 8 is as follows:

DATE	CONSERVATION POOL REGULATION
1 Feb - 15 Feb	Lower from 680 to 670
15 Feb - 15 Jun	Hold elevation 670
15 Jun - 25 Sep	Hold 680
25 Sep - 15 Dec	Hold 683
15 Dec - 1 Feb	Hold 680

The 683 pool level from 25 September - 15 December was implemented to provide habitat for migratory waterfowl during their fall migration. This portion of the plan was suggested by the Iowa Department of Natural Resources and was to be implemented as long as the 683 pool would not affect flood control.

By 1968 the reservoir had been in operation almost 10 years and recreation use of the reservoir and of public lands along the reservoir shoreline increased at a tremendous rate. Recreational users wanted higher pool levels, which would provide better conditions for boating and more desirable aesthetic conditions. The lake users sought congressional action to provide for a pool level restudy. The poor aesthetic condition of the lake is nowhere more apparent than at the U.S. Highway No. 218 crossing of the reservoir where the lake met the natural river. A restudy of the reservoir regulation plan, Plan 8, was directed and funded by Congress. The results of this study were given to the public through a public hearing arranged by the Iowa Natural Resources Council (now the Iowa Department of Natural Resources) at Iowa City during September 1969. After testimony by both interested groups and individuals, the Council recommended no change be made in the regulation plan. The Corps concurred with the recommendation of the Council and Plan 8 remained the approved plan of regulation.

In 1982, the 15 February to 15 June spring conservation pool was changed from elevation 670 to 675 and the drawdown date was delayed from 1 February until 15 February (to be drawn down by 1 March). This change was made due to recurring water quality problems, which had resulted as a part of the timing of the 670 spring drawdown. The conservation pool volume below elevation 670 had been reduced from 17,000 acre feet to 9,000 acre feet by sediment accumulation during the first 25 years of reservoir operation. This change in pool volume was documented by a sediment survey. The regulation plan change was necessary in order to sustain sufficient aquatic habitat and good water quality throughout the drawdown period. This change was an attempt to prevent the killing of fish and other aquatic life.

The reservoir was regulated under the above-modified Plan 8 until 1992. This modification provided for a change in conservation pool to elevation 683 feet, NGVD, and was authorized based on the *Water Control Plan*, prepared by the Rock Island District and dated November 1991. The *Water Control Plan* recommended the following changes be made:

1. Extend the non-growing season from 21 April to 1 May, eliminating the variable release rate provided for in the previous regulation schedule and allowing a maximum release of 10,000 cfs throughout the non-growing season.

UPDATE: October 2012

2. Allow a maximum release rate of 6,000 cfs at all times during the growing season, eliminating the variable release provided for in the previous schedule.

3. Change location of control point for regulation of Coralville Lake for Mississippi River flooding. The location for control of releases from Coralville Lake would be based on the Burlington, Iowa, gage. The new control stage at Burlington would be 18.0 feet.

4. Reduce release to 1,000 cfs for "seven days" corresponding to Mississippi River crest instead of "several days."

5. Begin intermediate magnitude flood regulation at elevation 707 feet, NGVD. This allows for evacuation of flood storage at moderate release rates earlier in the event, preventing the pool from rising to elevations requiring much higher, damaging outflows. This regulation included outflows in the 7,000 to 10,000 cfs range.

6. Begin large magnitude flood regulation at elevation 710.0. Going to higher releases at a lower elevation will prevent larger release rates when the reservoir fills to elevation 712.0 and uncontrolled spillway flow begins. This regulation begins with outflows at 10,000 cfs and increases to full conduit flow at spillway level of 712.0 feet, NGVD.

7. Implement a drought contingency plan, which is implemented when inflow is at, or forecast to fall below outflow. Reduced releases will occur when pool level recedes to the elevation of 678.0 feet, NGVD.

8. Use stage rather than discharge for the Lone Tree and Wapello control parameters.

9. Implement a Major Flood Emergency Schedule, which is well defined in both rising and falling reservoir pool conditions.

Using the above modifications, regulation Plan B was developed and studied in detail in the *Water Control Plan*. Plan B provided a regulated conservation pool of elevation 683, with a spring drawdown to elevation 679 and a variable fall pool raise to elevation 686. Coralville Lake is currently regulated under Plan B. The Drought Contingency Plan was approved and implemented in October 1996.

The Coralville Regulation Study published in January 1999 and a public workshop in March 1999 recommended several changes to plan B. The changes recommended were as follows.

1. Formalize the flash flood operation and put it in the regulation plan.
2. Change the summer release rate from 6,000 cfs to 8,000 cfs.
3. Eliminate the spring draw down to 679.0.

The change to 8,000 cfs for maximum summer release was later rejected by the Iowa Department of Natural Resources, downstream communities and landowners, and the spring draw down to 679 was made variable instead of eliminated.

---

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

---

**U.S. ARMY CORPS OF ENGINEERS – ROCK ISLAND DISTRICT**  
CLOCK TOWER BUILDING, P.O. BOX 2004, ROCK ISLAND, IL 61204-2004  
Corporate Communications Office, (309) 794-5274, [www.mvr.usace.army.mil](http://www.mvr.usace.army.mil)