Using Army Corps of Engineers Reservoirs for Municipal and Industrial Water Supply: Current Issues

(name redacted)
Specialist in Natural Resources Policy

January 4, 2010

Congressional Research Service
7-....
www.crs.gov
R41002

CRS Report for Congress
Prepared for Members and Committees of Congress

Summary

Congress has limited the use of Army Corps of Engineers dams and reservoirs for municipal and industrial (M&I) water supply. Growing M&I demands have raised interest in—and concern about—changing current law and reservoir operations to give Corps facilities a greater role in M&I water storage. A reallocation of storage to M&I use from a currently authorized purpose (e.g., hydropower or navigation) changes the types of benefits produced by a facility and the stakeholders served.

While Congress has specifically authorized 91 Corps multi-purpose facilities for M&I supply, it also has delegated to the Secretary of the Army constrained authority to reallocate storage to M&I water supply. In the Water Supply Act of 1958 (1958 WSA; P.L. 85-500), Congress provided that storage at Corps facilities could be allocated to M&I water supply without congressional approval if this reallocation did not seriously harm authorized project purposes or involve major structural or operational changes. Whether the Corps has regularly exceeded its discretion to reallocate is a concern raised in response to a July 2009 federal court order that found the Corps exceeded its discretion at Lake Lanier (GA).

In order to guide its implementation of the discretionary authority to reallocate, the agency developed guidance on what may constitute a major change or serious harm to an authorized purpose. Since 1977 that guidance has included quantitative limits on reallocations conducted without congressional authorization. Issues for Congress include whether the Corps' interpretation of its discretionary authority is consistent with congressional intent and whether current law and policy are appropriate for current demands and constraints on water resources.

CRS analysis of available data indicates that the Corps generally has not exceeded agency-established quantitative limits, with two exceptions in addition to Lake Lanier. One of the exceptions, Cowanesque Lake (PA), was made with the consent of Congress but conducted under the 1958 WSA authority. The other exception was a 1985 reallocation from hydropower to M&I use at Lake Texoma (TX/OK). The Corps found that a reallocation at Lake Texoma would neither require significant modification of the project, nor seriously harm authorized purposes (as the result of compensation being provided for lost hydropower). The Corps concluded that it could make the reallocation without congressional approval using its discretionary authority, in spite of the reallocation exceeding the agency-established quantitative limit. Whether this or other Corps reallocations and operational changes performed without congressional authorization (including those that have fallen within agency-established quantitative guidelines) have seriously harmed other project purposes or constituted a major operational change cannot be independently determined by available data, and is beyond the scope of the analysis herein.

Contents

Tables

Contacts

Limited Use of Federal Reservoir Storage for Municipal and Industrial (M&I) Water Supply

Increasing pressures on the quantity and quality of available water supplies are raising interest in—and concern about—changing operations at Corps facilities to meet municipal and industrial (M&I) demands. Corps M&I reallocations at Lake Lanier (GA) are central to an ongoing tri-state conflict involving Alabama, Florida, and Georgia. Furthermore, the agency is studying whether to reallocate storage to M&I use at dams in numerous states (e.g., Colorado, Kentucky, and Georgia), and Corps data indicate that more reallocation requests are forthcoming.[1] A reallocation embodies tradeoffs; shifting storage to M&I use from a currently authorized purpose (e.g., hydropower or navigation) changes the types of benefits produced by a dam and the stakeholders served.

The federal role in M&I water supply development is constrained, with states and local entities having the prominent role. Congress recognized state primacy in developing M&I supplies in the Water Supply Act of 1958 (1958 WSA; P.L. 85-500; 72 Stat. 319; 43 U.S.C 390b) as follows:

> It is hereby declared to be the policy of the Congress to recognize the primary responsibilities of the States and local interests in developing water supplies for domestic, municipal, industrial, and other purposes and that the Federal Government should participate and cooperate with States and local interests in developing such water supplies in connection with the construction, maintenance, and operation of Federal navigation, flood control, irrigation, or multiple purpose projects.

Therefore, although the federal government has made significant investments in water resources infrastructure, these investments primarily have been to support flood control, navigation, irrigation, multipurpose dams (including hydropower), and diversion facilities.

The largest federal projects were constructed by the Department of the Interior's Bureau of Reclamation under the Reclamation Act of 1902 and subsequent project authorizations known as Reclamation Law, and by the Department of Defense's Army Corps of Engineers (hereafter referred to as the Corps) through myriad Rivers and Harbors, Flood Control, and Water Resources Development Act (WRDA) legislation.[2] Since the 1960s, construction of large federal dams has slowed markedly, in response to their high cost, their ecological and social impacts, and the availability of appropriate sites. Reservoir planning in recent decades largely has focused on balancing competing objectives in operating existing reservoirs (as opposed to planning new projects), and in some cases on managing for new objectives.[3]

---

[1] As part of an assessment of its water supply portfolio, the Corps identified 109 reallocation possibilities within 10 years. (Presentation titled *National Portfolio Assessment for Water Supply Reallocations*, by Ted Hillier, Corps Water Supply Business Line Manager, June 2009, available at http://www.vtn.iwr.usace.army.mil/docs/CleanWaterSupplyWorkshop/Ted%20Jun%2009%20workshop%20Portfolio%20(2).pdf.)

[2] Other agencies such as the Natural Resources Conservation Service of the U.S. Department of Agriculture, the Tennessee Valley Authority, and the International Boundary and Water Commission have also played roles in federal water resource development.

[3] For example, actions to protect threatened or endangered species listed under the Endangered Species Act have changed many reservoir operating plans. Conflicting objectives for operating Missouri River dams—namely, maintaining flows for navigation and changing dam release regimes to protect seasonal needs of some bird and fish species—required controversial updates to the basin's reservoir control manual. Operational changes also are part of (continued...)

M&I Water Storage at Corps Facilities

Authority for M&I Storage Can Be Project-Specific or General

Congress authorizes the Corps to undertake construction of dams and other water resources infrastructure. Each dam and the reservoir it creates are operated in large measure to meet the project's authorized purposes and for compliance with federal laws. For each project (or set of projects in a basin), the principal purposes generally are laid out in the language authorizing project construction or in agency documents supporting the authorization, and in subsequent legislation specific to that project. Approximately 91 Corps reservoirs have M&I storage as a specifically authorized purpose (e.g., Lake Sakakawea, ND; Joe Pool Lake, TX).

Congress, through general legislation, has included additional requirements (e.g., fish and wildlife protection and coordination) for all Corps facilities, and has given the Corps authority to provide some additional benefits from its projects, such as recreation. The 1958 WSA and Section 6 of the Flood Control Act of 1944 (58 Stat. 890, 33 U.S.C. 708) provide the Corps some general, but limited, authority to provide M&I water supply. The 1944 authority allows the Corps to provide surplus water at its facilities (i.e., water not assigned to a project purpose) for M&I use on a temporary basis. This report does not analyze the Corps' use of the 1944 authority because it is not likely to have a significant future role in the permanent reallocation of significant quantities of water for M&I purposes. Instead, this report focuses on how the 1958 WSA has been implemented by the Corps, and provides data on the 44 Corps reservoirs that have had all or some of their storage reallocated under the Corps' 1958 WSA discretionary authority. For a discussion of legal issues related to the 1958 WSA, see CRS Report R40714, *Use of Federal Water Projects for Municipal and Industrial Water Supply: Legal Issues Related to the Water Supply Act of 1958 (43 U.S.C. § 390b)*, by Cynthia Brougher.

Congress Limited Agency Discretion for Reallocating Storage

In the 1958 WSA, Congress provided the Corps some general M&I water supply authority, but limited the agency's decision-making without congressional approval. Specifically, Section 301 of the 1958 WSA provides:

> Modifications of a reservoir project heretofore authorized, surveyed, planned, or constructed to include storage [for water supply] which would seriously affect the purposes for which the project was authorized, surveyed, planned, or constructed, or which would involve major structural or operational changes shall be made only upon the approval of Congress.

That is, M&I water supply can be provided as long as it is accomplished incidental to operations for the authorized purposes. If provision of water supply seriously affects a facility's authorized purposes or would cause a major operational change, the reallocation requires congressional authorization. How to gauge whether an effect is serious or a change is major was not defined by Congress.

(...continued)

restoration efforts for salmon runs in the Sacramento and Columbia River basins and fish in the California Bay-Delta.

After passage of the 1958 WSA, the Corps developed a guidance manual for implementing this authority (EM 1165-2-105). In March 1977, the Corps adopted as part of its manual the following provision for determining when a reallocation does not require congressional approval:

> Modifications of reservoir projects to allocate all or part of the storage serving any authorized purpose from such purpose to storage serving domestic, municipal, or industrial water supply purposes are considered insignificant if the total reallocation of storage that may be made for such water supply uses in the modified project is not greater than 15 per centum of total storage capacity allocated to all authorized purposes or 50,000 acre feet, whichever is less.[4]

Earlier guidance had not included numeric criteria.

2009 Court Order Found the Corps Exceeded Its Authority

The questions of whether the Corps has regularly exceeded its discretionary authority and how many reservoirs have storage reallocated under this authority have received attention in the wake of a federal court decision related to Corps operations and reallocations at Lake Lanier (GA). Numerous lawsuits related to Lake Lanier were consolidated and transferred to the U.S. District Court for the Middle District of Florida in 2007. A July 17, 2009, court order addressed a fundamental question common to many of the cases: whether the Corps violated Section 301 of the 1958 WSA by not seeking congressional approval for changes made in Lake Lanier operations to provide M&I water supply.[5] The court order largely agreed with Florida, Alabama, the Alabama Power Company, and the Southeastern Federal Power Customers. These litigants had contended that the Corps was obligated to seek congressional approval, because the provision of water supply required major operational changes that harmed authorized purposes. The court estimated that, since the mid-1970s, the Corps had reallocated more than 21% of Lake Lanier's usable storage without seeking congressional authorization; this reallocation represents roughly 260,000 acre-feet (AF). The court found that "de facto reallocations" started in the mid-1970s with operational changes that shifted storage from hydropower to M&I supply. Subsequently the Corps contracted with M&I water providers for storage space for withdrawals directly from the lake. The court found that the cumulative impacts of the Corps' actions exceeded its discretionary authority to reallocate.[6] The court order and its effect on M&I water supply for communities in northern Georgia have raised questions about how the Corps has reallocated water at its other facilities.

[4] This language was added in 1977 by attaching a page 8a to the 1961 *Water Supply Storage in Corps of Engineers' Projects* manual; the amended manual is available at http://water.sam.usace.army.mil/EM_1165_2_105_77.pdf.

[5] U.S. District Court for the Middle District of Florida, *In re Tri-State Water Rights Litigation*. The court order addressed only part of the claims raised in the consolidated cases; the court is considering separately other issues, including environmental claims such as alleged violations of the Endangered Species Act (ESA). For a more complete treatment of the legal issues related to the court order, see CRS Report R40714, *Use of Federal Water Projects for Municipal and Industrial Water Supply: Legal Issues Related to the Water Supply Act of 1958 (43 U.S.C. § 390b)*, by Cynthia Brougher.

[6] The order provides that status quo operations may continue for three years in order to secure the necessary congressional authorization for the water supply withdrawals and related dam operations, or some other resolution of this dispute. If unresolved by July 2012, operations of Buford Dam and its reservoir will return to the mid-1970s baseline.

Corps Reallocations Under 1958 WSA

A total of 135 Corps reservoirs have roughly 11 million acre-feet (AF) of storage designated for M&I water.[7] Most of the M&I water stored is authorized under project-specific authorities. However, 44 reservoirs derive all or part of their M&I storage authority from the 1958 WSA (see **Table 1** for a list of the reservoirs). The 1958 WSA is the basis for less than 640,000 AF of the Corps' M&I storage.

Table 1 shows that the Corps has reallocated more than 50,000 AF of storage space for M&I use at only one reservoir, Lake Texoma (TX/OK). The Corps has used its discretionary authority to perform four reallocations at Lake Texoma—one for 84,099 AF and three smaller reallocations, for a total of 103,003 AF. Other Texoma reallocations have been made with specific congressional approval.[8] The 84,099 AF reallocation from hydropower to M&I use was approved in a 1985 Corps document that included a compensation arrangement for lost hydropower, which had been negotiated among Lake Texoma stakeholders.[9] The Corps found that the reallocation would neither significantly harm the lake's authorized purposes (in part because of the compensation arrangement), nor require significant structural modifications. The Corps thus concluded that the transfer could be performed under the 1958 WSA without congressional approval, even though it exceeded the agency-established policy limiting reallocations without congressional approval to 50,000 AF.

Table 1 shows that the Corps stayed below the 15% of usable storage criterion, except at Cowanesque Lake (PA), where reallocated water supply represents almost 30% of storage. The Cowanesque Lake case is unusual in that it represents a mix of project-specific reallocation direction from Congress and use of the Corps' discretionary authority under the 1958 WSA. The Cowanesque reallocation was mentioned in P.L. 99-88, the Supplemental Appropriations Act of 1985, and was discussed as occurring under the Corps' 1958 WSA discretionary authority in the accompanying H.Rept. 99-236.[10]

As previously noted, the 1958 WSA indicates that the reallocation to water supply should not be made if it seriously affects authorized purposes or results in a major operational or structural

[7] Data in this paragraph is derived from multiple sources, including data provided to CRS directly by Corps staff and data in U.S. Army Corps of Engineers, *Water Supply Database 2005 Update* (Alexandria, VA: Institute for Water Resources Apr. 2006), available at http://www.swd.usace.army.mil/pcx/pdf/Water_Supply_Database_2005_Update.pdf.

[8] For example, a Lake Texoma reallocation of 300,000 AF was authorized in Section 838 of WRDA 1986 (P.L. 99-662).

[9] Originally this reallocation was for 77,400 AF, but a later updated sediment study resulted in the reallocation being increased to 84,099 AF (U.S. Army Corps of Engineers, *Letter Report Dennison Dam (Lake Texoma) North Texas Municipal Water District*, September 6, 1985). Select Oklahoma and Texas members of Congress were consulted and informed about the reallocation.

[10] H.Rept 99-236 stated: "The modification of the existing project for water supply is authorized by the Flood Control Act of 1958 and would be accomplished under the discretionary authority of the chief of Engineers.... The proposed modification for water supply would enable two electric utility companies to meet their consumptive use make-up needs during drought conditions." The reallocation was made from recreation to M&I; the reallocation supports downstream flows for cooling water for electric utilities during drought. Few releases have been made for this industrial use. The reallocation was accompanied by the raising of the reservoir pool; the cost of the raising, the reallocated storage space, related operations and maintenance, and improvements to recreation facilities were assigned to the M&I purpose.

change. The Corps is to evaluate these potential effects when studying whether to make or recommend to Congress a reallocation. Whether the studies used to support the reallocations shown in **Table 1** sufficiently evaluated how an M&I reallocation may affect authorized purposes or may constitute a major operational change is a general concern raised by the 2009 court order's questioning of the Corps evaluations related to Lake Lanier operations. An evaluation of the sufficiency of Corps reallocation analyses is beyond the scope of this CRS report.

Table 1. Corps Reservoirs with M&I Water Supply Reallocated Using 1958 WSA Authority

Reservoir Name and State	Usable Reservoir Storage (AF)	Supply Reallocated Under 1958 WSA (AF)	% of Storage Reallocated Under 1958 WSA
Denison Dam, L. Texoma, OK & TX	4,012,113	103,003	2.57
Melvern Lake, KS	337,000	50,000	14.84
Stockton Lake, MO	1,649,000	50,000	3.03
Tuttle Creek Lake, KS	2,001,000	50,000	2.50
Waco Lake, TX	733,536	47,526	6.48
Pomona Lake, KS	240,331	32,500	13.52
Hartwell, GA & SC	899,400	26,574	2.95
Cowanesque, PA	86,650	25,600	29.54
Tenkiller Ferry Lake, OK	1,458,000	25,472	1.75
John H. Kerr, VA	2,308,400	21,115	0.91
Beaver Lake, AR	1,224,700	20,995	1.71
Allatoona, GA	230,593	19,511	8.46
J. Percy Priest Dam & Reservoir, TN	124,000	17,311	13.96
Wister Lake, OK	417,600	13,819	3.31
Kanopolis Lake, KS	418,752	12,500	2.99
Marion, KA	141,114	12,500	8.86
Greers Ferry Lake, AR	1,650,500	11,556	0.70
Mosquito Creek Lake, OH	76,300	11,000	14.42
Youghiogheny River Lake, PA	151,000	10,000	6.62
Elk City, KA	248,398	10,000	4.03
John Redmond, KA	574,918	10,000	1.74
Council Grove Lake, KA	112,882	8,000	7.09
Center Hill Lake, TN	492,000	7,212	1.47
Rathbun Lake, IA	528,000	6,680	1.27
Curwensville, PA	111,998	5,360	4.79
Enid, MS	602,400	4,500	0.75
Green River Lake, KY	53,825	3,460	6.43
John W. Flannagan, VA	85,000	3,360	3.95

Reservoir Name and State	Usable Reservoir Storage (AF)	Supply Reallocated Under 1958 WSA (AF)	% of Storage Reallocated Under 1958 WSA
J Strom Thurmond, GA & SC	1,045,000	3,327	0.32
Grayson Lake, KY	119,000	2,508	2.11
Dale Hollow Lake, TN & KY	496,000	2,211	0.45
Carr Creek Lake, KY	34,981	2,052	5.87
Blakey Mt. Dam, Lake Ouachita, AR	617,400	1,575	0.26
Blue Mountain Lake, AR	233,260	1,550	0.66
Norfork Lake, AR	1,438,000	900	0.06
Bull Shoals Lake, AR	3,363,000	880	0.03
Richard B Russell, GA & SC	266,806	872	0.33
Carters, GA	230,593	818	0.35
Cave Run Lake, KY	47,000	802	1.71
Laurel River Lake, KY	185,000	519	0.28
Summersville Lake, WV	57,900	468	0.81
Rough River Lake, KY	90,210	402	0.45
Harry S Truman Dam & Res., MO	4,959,000	283	0.01
Nimrod Lake, AR	307,000	143	0.05

Source: CRS modified from Corps data provided on 12/17/09.

Notes: Lake Lanier (GA) and Lake Cumberland (KY) are not included because they do not currently have authorized M&I water supply storage under the 1958 WSA.

Lake Lanier is not in **Table 1** because the July 2009 court order found that the M&I uses exceeded the 1958 WSA authority. Similarly, Lake Cumberland (KY) is not included, although M&I withdrawals occur there, because these withdrawals have not been authorized. Enforcement action to stop the withdrawals at Lake Cumberland has not been taken. How many other unauthorized withdrawals and operational actions that support M&I uses occur at other Corps facilities is largely unknown; many Corps dams are decades old, often predating the 1958 WSA, and their operations have evolved incrementally over time.

Questions and Challenges for M&I Water Supply Storage at Federal Reservoirs

To date, the Corps' operation of Lake Lanier for M&I water supply has constituted the agency's most controversial provision of M&I water supply. The 2009 court order raised numerous concerns, including the possibility that previous reallocations at other Corps facilities could be disputed, and uncertainty about how future reallocation at Corps facilities will be evaluated and performed. Thus far, most Corps reallocations have taken place without the national attention or litigation of Lake Lanier, either using the Corps' delegated authority or through specific congressional legislative direction. As shown in **Table 1**, existing reallocations under the 1958 WSA, with few exceptions, were within the numeric criteria that the Corps established for

implementing its discretionary authority. Whether Congress agrees with the Corps' interpretation and use of its discretionary authority is a policy issue of increasing relevance as interest grows in M&I reallocation at federal facilities. Other issues raised by current use of the discretionary authority and reservoir operations include whether multiple reallocations in a single basin are to be treated separately or on a watershed basis, how much discretion the agency should have in making reallocation agreements with stakeholders, including financial charging and crediting arrangements, and how the agency should handle ongoing unauthorized withdrawals.

Current policies on M&I reallocations at Corps facilities reflect numerous decisions and tradeoffs that may be reexamined as more reallocations are requested. For example, if reallocations to M&I are made, how is the transition to be carried out, given that stakeholders, such as recreation interests and hydropower customers, have developed around existing operations? How should the federal government charge for the M&I storage space provided?[11] Should the federal government credit for return flows (i.e., water not consumed by M&I uses that is returned to a Corps reservoir)? M&I water supply at Corps facilities also is part of several broader water policy questions for Congress. For example, what is the appropriate federal role in municipal water supply? Should that role change if a community's existing water supply is reduced by potential climate change effects, such as extended drought? Do current water resources infrastructure operations, laws, divisions of responsibilities, and institutions reflect the national interest and present challenges? Addressing these questions is complicated by the wide range of opinions on the proper response and the difficulty of enacting any change to how federal facilities are operated, other than incremental change or project-specific measures, because of the many affected constituencies.

Author Contact Information

(name redacted)
Specialist in Natural Resources Policy
[redacted]@crs.loc.gov, 7-....

[11] Much of the current Corps practice on charging for M&I storage and crediting for lost benefits (e.g., lost hydropower) during reallocations has evolved over decades and is not set out in statute. The current guidance results in a fairly complicated evaluation and is judged by some stakeholders as unsatisfactory (e.g., insufficient credit for lost hydropower to offset cost to purchase replacement power).