INTERBASIN TRANSFERS OF WATER

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Abstract. Population growth, environmental constraints and climate change can adversely affect water supply systems' ability to keep up with demand. Officials with state and local jurisdictions struggle to evaluate demand-side solutions — conservation and growth management; and supply-side solutions — additional storage either through reservoirs or ASR. One potential solution, the interbasin transfer of water (IBT), continues to intrigue water supply managers and generate controversy with downstream users and landowners.

IBTs are a management practice addressing water needs in part of a receiving basin. While controversies and litigation are common, IBTs have a long history of use worldwide to increase supply for residential, commercial, agricultural, hydropower and other demands. In the United States, eight of the ten largest population centers use significant interbasin transfers.

IBTs may adversely impact water resources in both the donor and receiving basins and opportunities for reasonable water use in the donor basin. Potential impacts to a donor basin may include changes to: the natural flow regime, water quality, the ability to assimilate pollutants, habitat for fish and other wildlife, wetlands and riparian habitat, water-based recreational activities and aesthetics.

Many times, the response to proposed IBTs is new legislation that prohibits or limits future transfers. An example is the Great Lakes St. Lawrence River Basin Water Resources Compact governing the use of water within the Great Lakes region. In those jurisdictions where IBTs are allowed, typically they must satisfy certain criteria to ensure: (1) the demand in the receiving basin is real and cannot economically be met by sources within the basin, and (2) the benefits to the receiving basin outweigh the impacts to the basin of origin.

Interbasin Transfers of Water. Population growth, environmental constraints and climate change can adversely affect our water supply systems' ability to keep up with demand. Officials with state and local jurisdictions struggle to evaluate demand-side solutions — conservation, rationing and growth management; and supply-side solutions — capture and control of water via additional storage either through reservoirs or aquifer storage and recovery. One potential solution, the interbasin transfer of water, continues to intrigue water supply managers and generate controversy with downstream users and landowners.

The Georgia Comprehensive State-wide Water Management Plan (the "Plan") defines an interbasin transfer as "the withdrawal or diversion of water from one river basin, followed by use and/or return of some or all of that water to a second river basin."[1]. The Plan defines the river basin from which the withdrawal or diversion occurs as the "donor" basin or "basin of origin" and the river basin to which all or a portion of the water is diverted and returned as the "receiving" basin.[2]

Benefits of Interbasin Transfers. Interbasin transfers of water are a management practice that addresses water supply and/or water quality needs in some parts of the receiving basin.[3] While many political controversies and fierce litigation arise out of proposed or actual use of interbasin transfers of water, interbasin transfers have a long history of use around the world. From nearly the time that we could construct aqueducts, mankind has moved water from one basin to another to, among many other uses:

- Increase supply to meet growing residential and commercial demand;
- Increase supply to meet new and additional agricultural demands;
- Increase supply to meet growing hydropower demands;
- Increase flow to increase the assimilative capacity of the water body;
- Protect urban and agricultural land from flooding; and
- Manage wastewater concerns.[4]

In the United States, eight of the ten largest population centers use interbasin transfers. For example:

New York City, the most populous metropolitan area in the United States, expanded its water system in the 1950s and 1960s to include an interbasin transfer of water from the Delaware River for public water supply purposes.[5]

In Chicago, the Chicago Sanitary and Shipping Canal transfers water from the Great Lakes Basin to the Mississippi River Basin. The Canal was constructed to avoid a threat to public health from raw sewerage infiltrating the

public drinking water supply in Lake Michigan. It does so by moving sewerage "upstream" to the Illinois River.[6]

In southern California, the Los Angeles Aqueduct, completed in 1913; the Colorado River Aqueduct, completed in 1941; and the All American Canal, built in the 1930's, all transfer millions of gallons of water per day from the Colorado River to southern California to provide water supply to residents of the Los Angeles area and for agricultural irrigation. In the 1960's and 1970's the California State Water Project was constructed to transfer water from northern to southern California.[7]

In Texas, interbasin transfers are a common means of increasing public water supply in major metropolitan areas, including Dallas/Fort Worth and Houston.[8]

South Florida, including Miami, has historically relied upon water from sources such as Lake Okeechobee and the Everglades to recharge the region's underground source of drinking water, the Biscayne Aquifer.

In Georgia, the Atlanta metropolitan area encompasses portions of five different river basins, the Coosa, Chattahoochee, Flint, Ocmulgee, and Oconee river basins. Interbasin transfers amongst these five river basins are common.

In the 1930's, Quabbin Reservoir was constructed in the Chicopee River Watershed, part of the Connecticut River system, in order to serve the needs of the Boston metropolitan area.[9]

Interbasin transfers also serve smaller communities. North Carolina has authorized upstream transfers of water from the Catawba River Basin of 33 million gallons per day for Charlotte and 10 million gallons per day for the cities of Concord and Kannapolis.[10]

Impacts of an Interbasin Transfer. The examples listed above demonstrate the widespread use and multiple benefits of interbasin transfers, including enabling the receiving basin to meet increased residential, industrial and agricultural demands for water supply. Interbasin transfers may, however, have adverse impacts on water resources in both the donor and receiving basins and on opportunities for reasonable water use in the donor basin.[11] For example, in the ongoing litigation before the United States Supreme Court over the Catawba River, South Carolina claims that the upstream interbasin transfers approved by North Carolina deprives South Carolina of its equitable share of the Catawba River's water, particularly during periods of drought or low river flow.

Potential impacts to a donor basin as a result of reduced stream flow may include changes to:

- natural flow regime;
- water quality and the ability of the source water body to assimilate pollutants;
- habitat for native aquatic communities of fish and wildlife, including threatened and endangered species;
- wetlands and riparian habitat;
- availability of water-based recreational activities; and
- aesthetic qualities.[12]

Legislation Regarding Interbasin Transfers. Many times, the response to actual or proposed interbasin transfers of water has been new legislation that prohibits or limits future transfers. Examples of such legislation include the following:

The Great Lakes St. Lawrence River Basin Water Resources Compact , an eight-state compact signed into law October 3, 2008 by President George Bush, governs the use of water within the Great Lakes region and prohibits interbasin transfers, except for:

- diversions to areas outside the basin but within communities that lie partially within the basin;
- diversions of water from one Great Lakes watershed to another Great Lakes watershed; and
- diversions of water to communities that lie outside the basin but within a county that lies partially within the basin, but only upon unanimous approval by the multistate council created by the Compact.[13]

In Georgia, the legislation creating the fifteen-county Metropolitan North Georgia Water Planning District prohibits the interbasin transfers of water from outside the District to meet water supply demands within the District.[14] However, while interbasin transfers from outside the District are prohibited, proposed legislation would require the State to study the feasibility of a system of interbasin interconnections within the District to provide redundant supply for essential water needs.[15]

In those jurisdictions where interbasin transfers are allowed, proposed interbasin transfers must satisfy certain criteria to ensure: (1) the demand in the receiving basin is real and cannot economically be met by sources within the basin, and (2) the benefits to the receiving basin outweigh the impacts to the basin of origin. Examples include the following:

In Texas, the Texas Commission on Environmental Quality must consider several factors before it can grant a permit for an interbasin transfer.[16] These include the:

- need for water in the basin of origin and the receiving basin for up to 50 years;
- availability and feasibility of practical alternative supplies in the receiving basin;
- amount and purposes of use in the receiving basin;
- measures and efforts in the receiving basin to avoid waste and conserve water;
- measures and efforts in the receiving basin to put the water to beneficial use;
- projected economic impact in each basin;
- projected environmental impact in each basin; and
- mitigation or compensation proposed by the applicant for the basin of origin.[17]

In Florida, when determining whether the public interest is served by a transfer of groundwater from one water district to another,[18] or surface water from one county to another,[19] the governing board or department must consider:

- the proximity of the proposed water source to the area of use;
- all water bodies geographically closer to the area of use that are technically and economically feasible for transport and use;
- all economically and technically feasible alternatives, including desalination, conservation, reuse, and aquifer storage and recovery;
- the potential environmental impacts;
- existing and reasonably anticipated regional sources of water and conservation;
- consultation with the involved local governments; and
- the value of existing capital investment in water infrastructure by the applicant.[20]

In South Carolina, no person is allowed to transfer more than five percent (5%) of the calculated annual 7Q10 flow[21] or one million gallons of water per day, whichever is less, without first obtaining a permit from the South Carolina Department of Health and Environmental Control ("SCDHEC"). SCDHEC cannot issue a permit for an interbasin transfer if the transfer would result in a violation of the water classification standard system or the stream classification system or if the transfer would adversely affect the public health and welfare.[22] When evaluating a permit application, SCDHEC shall protect water quality in the donor basin and consider:

- the present and reasonably foreseeable future water needs of the losing basin and its ability to respond to emergencies;
- the foreseeable water needs of the receiving basin, including conservation and efficiency of use;
- the beneficial impacts on the State and local subdivisions of the State;
- the feasibility of alternative sources of supply;
- the impact on interstate water use; and
- whether the proposed transfer will have any beneficial or detrimental impact on navigation, hydropower generation, fish and wildlife habitat, aesthetics and recreation.[23]

Controversy and Litigation. Anywhere an interbasin transfer is proposed, a public controversy or litigation is likely to follow.

In Florida, opposition to the transfer of water from the relatively water-rich portions of northern Florida to southern Florida to meet growing agricultural and residential demand is a recurring source of intrastate controversy.[24]

The states of Georgia, Florida and Alabama have been engaged in the "Tri-State Water Litigation" for twenty years. The litigation concerns the U.S. Army Corps of Engineers' management of the federal reservoirs, Lake Lanier and Lake Allatoona, for water supply. The issue of interbasin transfers is one of many issues at stake in this long-running dispute.

As previously mentioned, the states of North Carolina and South Carolina are engaged in litigation before the Supreme Court of the United States to equitably apportion or allocate the water in the Catawba River. South Carolina brought suit against North Carolina as a result of proposed transfers of water from the Catawba River to other river basins.

Where do we go from here? Any debate concerning the future expansion or limitation of the use of interbasin transfers will center on several key policy considerations.

First, should agricultural or residential growth in a particular watershed be limited by the amount of water that can be captured and controlled within that basin?

The State of Florida has effectively endorsed such a limitation as part of its growth management and concurrency requirements for water supply. Because of relative water scarcity and the uncertainty of future interbasin transfers, Florida statutes require local governments to consult with water suppliers to ensure that adequate wa-

ter supplies will be in place and available to serve a new development by the time the local government issues the development's certificate of occupancy.[25]

Second, if growth in a basin is to be limited by that basin's natural water supply, how is the available water to be apportioned between human and aquatic demands?

Numerous regulatory programs address the issue of apportionment of water supply. For example, Georgia's Board of Natural Resources adopted an instream flow policy on May 23, 2001 which sets forth the policies and procedures for determining the minimum flows required below new withdrawals to protect aquatic habitat.[26] The Federal Energy Regulatory Commission establishes minimum downstream discharge flows for all hydropower production reservoirs as part of the permitting process.[27] Likewise, when reviewing federal permits the U.S. Fish & Wildlife Service may require minimum flows downstream of a project (i.e., water supply reservoir) to protect habitat for threatened and endangered species.[28]

Third, should water in a basin be reserved for use in the basin even when there is no foreseeable demand?

This policy consideration is at the core of the recent debate over the transfer of water from the Tennessee River basin to meet increasing municipal demand in Georgia, Alabama and Mississippi. Supporters of the proposed interbasin transfer cite a May 2004 study which concluded that a billion gallons of water a day can be withdrawn from the Tennessee River basin without adversely impacting the operation of its system of reservoirs.[29] This study and the more recent drought have heightened the interest in investigating a potential interbasin transfer for municipal use in Georgia. It remains to be seen whether this type of evidence will be sufficient to persuade legislators to pursue and regulatory authorities to approve this interbasin transfer.

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[1] Plan at 10 (available at http://www.georgiawatercouncil.org/Files_PDF/water_plan_20080109.pdf).
[2] *Id*.
[3] *Id.* at 26.
[4] Policy Brief 2010, Interbasin Transfers, Carl Vinson Institute of Government found at www.cviog.uga.edu/ services/policy/environmental/brief_interbasin.pdf
[5] www.nyc.gov/html/dep/pdf/wsstate09.pdf
[6] www.glwi.uwm.edu/ourwaters/documents/DiversionsCWeb.pdf
[7] http://www.water-ed.org/watersources/default.asp
[8] www.regioncwater.org/Documents/Water%20Manag - ement%20Strategies/FINAL_Potentially_Feasible_Interbasin_Transfers.pdf
[9] www.mwra.com/04water/html/watsys.htm
[10] *South Carolina v. North Carolina*, filed June 7, 2007 with the United States Supreme Court
[11] Plan at 26.
[12] Policy Brief 2010, Interbasin Transfers, Carl Vinson Institute of Government found at www.cviog.uga.edu/ services/policy/environmental/brief_interbasin.pdf
[13] U.S. Public Law 110-342, 122 Stat. 3739 at Art. 4, Sec. 4.9 (2008)
[14] O.C.G.A. § 12-5-584(f).
[15] Senate Bill 442, 150th Gen. Assembly, 2nd Sess. (Ga. 2010)
[16] Tex. Water Code Ann. § 11.085 (2009).
[17] *Id.* at § 11.085(c)(1-3).
[18] Fla. Stat. § 373.2295 (2009).
[19] *Id.* at § 373.223.
[20] *Id.* at § 373.223 (3)(a-g).
[21] Annual 7Q10 Flow is the lowest 7-day flow in any 10-year period
[22] S.C. Code Ann. § 49-21-30(D)(a) (2009).
[23] *Id.* at § 49-21-30(C)(1-12).
[24] http://www.sfrpc.com/council/AgendaApr10_16.pdf
[25] Fla. Stat. Ann. § 163.3180(2)(a) (2009).
[26] Georgia Department of Natural Resources, *Water issues White Paper*, *Revised May, 2001*.
[27] See Federal Energy Regulatory Commission, *Final Order for Georgia Power Company's Middle Chattahoochee Project*, *December 2004.*
[28] U.S. Fish & Wildlife Service, *Biological Opinion for the Hickory Log Creek Reserv*oir, *June 2002*
[29] See Tennessee Valley Authority, Programmatic Environmental Impact Statement: Tennessee Valley Authority Reservoir Operations Study, Record of Decision at Appendix D9 (May 2004) (available at http://www.tva.gov/environment/reports/ros_eis/ros_rod.pdf).