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Lake Diversion at Chicago

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*by Bruce Barker, P.E.**

I. INTRODUCTION

Diversion of Lake Michigan water to the Mississippi River watershed at Chicago is the oldest and largest out-of-basin transfer from the Great Lakes. Before 1938 the amount of water diverted was as much as 10,000 cubic feet per second (cfs) annually. As a result of intense legal disputes starting at the turn of the century and ending over fifty years ago with a decree of the U.S. Supreme Court Illinois' diversion is now limited. [1] Subsequent challenges in the 1950's resulted in another decree in 1967[2] limiting diversion to 3,200 cfs.

The legal principles involved in the Chicago diversion cases are few, though profound:

- A state has no right to divert navigable waters in such an amount to impair navigation without direct authority from Congress;
- Until Congress has acted, the U.S. Army Corps of Engineers may use its permit authority to restrain a state's diversion;
- The Corps permit is a revocable license and cannot create a right to divert;
- Damages to riparian owners on navigable waters resulting from a diversion authorized by Congress are not compensable.[3]

This article will describe lake diversion at Chicago in physical and operational terms as it now exists under the controlling decrees. This article will then present chronologically the historical development of the diversion and the resulting legal disputes emphasizing the balancing role of the state in developing a navigable waterway while attempting simultaneously to protect Chicago's water supply. The legal standing of lake diversion at Chicago will then be summarized.

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* Illinois Dept. of Transportation Division of Water Resources. Daniel Injerd, Division of Water Resources, Illinois Dept. of Transportation, contributed to the discussion of the "Lake Michigan Water Allocation Process."

[1] Wisconsin v. Illinois, 281 U.S. 179 (1930). *See* ILL. DEPT. OF TRANSP. DIV. OF WATER RESOURCES, GREAT LAKES WATER DIVERSIONS AND COMSUMPTIVE USES: CHARTING A COURSE FOR FUTURE PROTECTION 35 (1983).

[2] Wisconsin v. Illinois, 388 U.S. 426 (1967).

[3] A. MARIS, REPORT OF SPECIAL MASTER: WISCONSIN V. ILLINOIS (U.S. S. Ct. Dec. 8, 1966) presents an excellent legal history and a good factual and historical summary.

II. THE DIVERSION

A. *Purpose*

The diversion prevents treated municipal and industrial wastewaters and polluted stormwater runoff from entering Lake Michigan and degrading the water supply source. Water withdrawn and used for municipal and industrial water supply is conveyed through sewers to treatment plants into streams and waterways, which carry the flow away from Lake Michigan into the Illinois River watershed (Mississippi River Basin).[4] The main reason for carrying away the flow is sanitation but the diverted flows also maintain navigable depths on a system of waterways. The waterways provide an important, man-made, navigable link between deep draft lake ports and shallow draft waterways of the Mississippi River system.

The two uses —sanitation and navigation— are very compatible in physical requirements and are jointly served by the same system of rivers and canals. In legal stature, the uses are different. Navigation is a federally protected use which, at least in the eastern United States, has the highest possible legal standing.[5] All serious legal attacks have been against the sanitary diversion, which has been shielded behind the federally protected navigation use since 1930.[6] The controlling decrees do not restrict Illinois water supply withdrawals from Lake Michigan. The 3,200 cfs limitation is only on the amount of water diverted where the effluent is not returned to the lake.

B. *Diversion Works and Operation*

The main diversion outlets are the Lockport lock, powerhouse, and controlling works. Water is discharged to the Des Plaines River, a navigable tributary of the Illinois River and part of the Illinois waterway. Lockport is thirty-six miles down the Illinois waterway from Lake Michigan and 290 miles up from the Mississippi River. Most dry weather flow passes through a hydroelectric powerhouse adjacent to the lock. The remainder is discharged from the navigation lock. Floodwaters are discharged through the controlling works. The diversion formula of the decree is framed around the discharge at Lockport and adds or subtracts other flows that are diversions from or to the lake but do not pass Lockport or cannot be measured at Lockport.

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[4] *Id.* at 86-90.

[5] While the low ranking of sanitation can be inferred from the lake diversion cases, it is interesting that the Boundary Waters Treaty of 1909, art. VIII gives the following priority order: domestic, sanitary, navigation, power, irrigation. Treaty Relating to Boundary Waters and Boundary Questions, Jan. 11, 1909, United States - Great Britain, 36 Stat. 2448, T.S. No. 548 [hereinafter cited as Boundary Waters Treaty of 1909].

[6] A. MARIS, *supra* note 3, at 400-02.

COMPOSITION OF DIVERSION
IN A
TYPICAL YEAR

Public water supply		52%
Stormwater runoff		30%
Direct diversion		18%
Discretionary	10%	
Navigation makeup	4%	
Lakefront lockages	3%	
Lakefront leakage	1%	
Total		100%[7]

Direct diversion is admitted into the river-canal system above Lockport at three locations: Wilmette pumping station, Chicago River controlling works, and O'Brien controlling works. The Wilmette pumping station is fifty miles from Lockport via the North Shore channel, the North and South Branches of Chicago River, and the Sanitary and Ship Canal. The Chicago River lock and controlling works is thirty-six miles from Lockport via the Chicago River and the canal. The O'Brien lock and controlling works are thirty-five miles from Lockport via the Little Calumet River and the Calumet-Sag Channel.[8] Except during storm periods, river stages at the Chicago River and the O'Brien controlling works are maintained at two feet below normal lake level by adjusting direct diversion inflow and the discharge at Lockport.[9] Most of the dry weather flow at Lockport emanates from four large sewage treatment plants: Northside, West-Southwest, Calumet and Clavey Road. The remainder of the dry weather flow consists of natural low flows of the Chicago River, the Little Calumet River and the Grand Calumet River; direct diversion; lockage water at the Chicago River and the O'Brien locks; industrial effluents; and effluents from smaller sewage treatment plants.[10]

Stormwater runoff from the diverted watersheds of the Calumet River and the Chicago River (673 square miles) is discharged to the river-canal system through hundreds of storm sewers and several large pumping stations. In a severe storm combined stormwater inflow could exceed 250,000 cfs, which greatly exceeds the capacity of the Sanitary and Ship Canal. A maximum discharge of 30,000 cfs can be achieved at Lockport only by lowering the upper pool level seven feet below normal

[7] Daniel Injerd, Chief Lake Michigan Management Section, Illinois Dept. of Transportation, Division of Water Resources (1985).

[8] NAT'L OCEAN SURVEY, UNITED STATES GREAT LAKES PILOT 429-53 (1976).

[9] 33 C.F.R. §§207.420 - .425 (1985); ILLINOIS DEPT. OF TRANSP. DIV. OF WATER RESOURCES, LMO 77-1, LAKE MICHIGAN WATER ALLOCATION 22-23 (1977).

[10] ILL. DEPT. OF TRANSP., *supra* note 9, at 17, 20-39.

and allowing the river levels at the Chicago River and the O'Brien controlling works to rise seven feet above normal. If the river levels continue to rise, excess flows must be discharged to Lake Michigan to prevent catastrophic flooding of subways, expressways, underpasses, and buildings. Since closure of the O'Brien controlling works in 1965, which diverted the stormwater of the Calumet River Basin toward Lockport, backflow events have occurred every year.[11]

Stormwater runoff from the diverted watershed is part of the 3,200 cfs limit of the 1967 decree. The long term average runoff is about 660 cfs. Discharges at Lockport are now measured by an acoustic velocity meter at Romeo Road, three miles above the Lockport controlling works.

Some of the diverted lakewater never passes Lockport and is discharged from sewage treatment plants to streams in the Des Plaines River and the DuPage River watersheds (Illinois River Basin). Under the state water supply allocation program, as more suburban communities receive Lake Michigan water, these flows will increase in order to phase out well supplies and to reduce overdraft on the deep sandstone aquifers. Withdrawals from the deep aquifers are now three times greater than the rate of recharge. Pumping levels are dropping rapidly.

Construction of the Tunnel and Reservoir Plan (TARP) to reduce flooding, stormwater pollution, and backflows to the lake will also alter diversion patterns. Current and anticipated changes in diversion patterns necessitated a revision of the diversion accounting formula in 1980.

III. DIVERSION DEVELOPMENT AND LITIGATION

A. Illinois and Michigan Canal

The Illinois and Michigan Canal was authorized by Congress on March 2, 1827.[12] The act contains an implied authorization of diversion "to unite the waters of Illinois River with those of Lake Michigan . . . ."[13] All design and construction on the canal from 1836 was predicated on gravity diversion from Lake Michigan to maintain navigable depths and operate the locks. By 1845 the state had run out of capital and turned the canal over to the bondholder's trustees for completion.[14]

To save capital, the trustees redesigned the canal between Chicago (Bridgeport) and Lockport to minimize excavation. This plan had a

[11] Various unpublished engineering studies related to the Tunnel and Reservoir Plan (TARP) done by: Metropolitan Sanitary District of Greater Chicago; City of Chicago, Dept. of Water & Sewers; City of Chicago, Dept. of Public Works; and Illinois Division of Water Resources.

[12] STATE OF ILLINOIS DEPT. OF PUBLIC WORKS AND BUILDINGS, DOCUMENTARY HISTORY OF THE ILLINOIS AND MICHIGAN CANAL 54 (1956).

[13] *Id.*

[14] *Id.* at 141-50; J. PUTNAM, THE ILLINOIS AND MICHIGAN CANAL 60 (1918).

summit level eight feet above the lake. Water was supplied to the summit level from three sources. First, a dam on the Little Calumet River with a crest elevation twelve feet above the lake diverted flow via the Calumet Feeder Canal through the Sag Valley and the Ausaganaskee Swamp to the summit level at Sag Bridge. Second, the Des Plaines River and the canal ran together at Sag Bridge; but the river was a poor source of low flow. Finally, the two steam pumps at Bridgeport could each lift about 100 cfs from normal lake level to the summit level.

The Illinois and Michigan Canal was opened to traffic in 1848. The Calumet Feeder Canal was completed in 1849. Until 1861 pumping was only required about forty-five days per year; the Des Plaines River and Calumet Feeder supplies were adequate the rest of the time. Annual diversion from Lake Michigan was on the order of 100 cfs.[15] From 1866 through 1871 the city of Chicago paid the canal trustees to operate the Bridgeport pumps another ninety-five days per year, on the average, to flush sewage from the Chicago River and away from the lake. Annual diversion increased to about 125 cfs.[16]

Between 1867 and 1871 the city deepened the canal between Bridgeport and Lockport to eliminate the summit level according to the original plan of 1836. The deep cut provided gravity flow from the lake to Lockport at the rate of 160 to 550 cfs depending on the lake level and ice cover on the canal.[17]

Starting with a flood in 1872, the Des Plaines River flow was almost entirely diverted to the Chicago River through the Ogden-Wentworth ditch. This flow essentially prevented sewage from reaching the canal entrance, and pollution in the Chicago River became intolerable. A dam was built to stop the Des Plaines diversion in 1876. Finally, a new steam pump and guard lock was installed at Bridgeport in 1884, and the canal summit level was reestablished. Pumping capacity was 1,000 cfs at normal lake level.[18] Since the Calumet Feeder had been abandoned and the Little Calumet River Dam removed in 1874 at the request of Indiana, the Bridgeport pumps were the main supply of water to the canal. Annual diversion from Lake Michigan was on the order of 500 cfs. Pumping continued until 1900 when the project, for sanitary purposes, was replaced by the Sanitary and Ship Canal.[19]

B. Dilution Project

In 1887, the Drainage and Water Supply Commission recommended

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[15] G. BROWN, DRAINAGE CHANNEL AND WATERWAY 64, 201-04 (1894).

[16] *Id.* at 307.

[17] *Id.* at 307-09.

[18] *Id.* at 316-18, 321-24.

[19] 1900 ILL. CANAL COMM'RS ANN. REP. 4, 225-27 (1901).

a major plan for collecting and disposing of Chicago's sewage. Large quantities of lakewater would be pumped into the North and South Branches of the Chicago River to flush sewage toward a new outlet canal. The new outlet would have a much greater hydraulic capacity than the Illinois and Michigan Canal and it would be the start of a new navigable connection to the Illinois River.[20]

An Illinois statute, effective July 1, 1889, authorized creation of the Sanitary District of Chicago to implement the dilution project. No federal permit was ever issued for constructing the main outlet channel, the Sanitary and Ship Canal. However, beginning on July 3, 1896, with a federal permit to enlarge the Chicago River, a string of permits was issued by the Corps of Engineers on diversion features of the project. The permit of May 8, 1899, set a limit on flow through the Chicago River at 4,167 cfs.[21] Flow through the Sanitary and Ship Canal began January 17, 1900. The possible health threat to St. Louis prompted the first of many U.S. Supreme Court decisions.[22]

A request for a federal permit to open the Calumet-Sag Channel was denied February 23, 1907. This prompted a suit by the Sanitary District which was not settled until 1925. The Corps was becoming concerned with the magnitude of lake level lowering which could result from increased diversion at Chicago. On July 30, 1910, the Corps limited diversion through all channels to a combined total of 4,167 cfs. The North Shore Channel was completed in 1910 and the Chicago River enlargement was completed in 1912. The Sanitary District now prepared to complete the dilution project to its planned capacity of 10,000 cfs. The permit application was denied by the Secretary of War on January 8, 1913, asserting that it could only be authorized by Congress.[23] Nevertheless, construction continued on the Calumet-Sag Channel which was completed in 1922.

All the actions of the Corps of Engineers to limit lake diversion at Chicago were upheld in *Sanitary District of Chicago v. United States*.[24] The Supreme Court said: "Evidence is sufficient, if evidence is necessary, to show that a withdrawal of the size directed by the statute of Illinois threatens and will affect the level of the lakes, and this is a matter which cannot be done without the consent of the United States. . . ."[25] While the need for consent was clearly stated, the Court was ambiguous on how to obtain the consent of the United States. Certainly a permit from the

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20 G. BROWN, *supra* note 15, at 345-77.

21 L. COOLEY, THE DIVERSION OF THE GREAT LAKES BY WAY OF THE SANITARY AND SHIP CANAL OF CHICAGO 17-18, 209-16 (The Sanitary District of Chicago, 1913).

22 Missouri v. Illinois, 200 U.S. 496 (1906).

23 L. COOLEY, *supra* note 21, at 194-205.

24 266 U.S. 405 (1925).

25 *Id.* at 426.

Corps of Engineers under section ten of the Rivers and Harbors Act of March 3, 1899 was inadequate. According to the Court, Corps permits are only revocable licenses.[26]

C. *Illinois Waterway*

At this point, it is convenient to trace state and federal efforts to replace the Illinois and Michigan Canal with a much larger waterway connecting Lake Michigan and the Mississippi River. Federal clearing, snagging and dredging on the Illinois River began in 1852. Still, there were long low water periods when larger steamboats could not reach the canal basin at Peru and canalboats could not be towed to and from river ports. A state project to provide a seven-foot channel by locks and dams and dredging was authorized in 1867. Henry lock and dam was completed in 1872, and the Copperas Creek lock and dam was completed in 1877. There was now a reliable channel for eighty-six miles below Peru. Congress authorized the LaGrange and Kampsville locks and dams in 1880 to complete the seven-foot channel to the Mississippi River.[27] Federal maintenance of the entire seven-foot channel from the mouth of the Illinois River to Peru was authorized in 1907.

Attention then turned to the Illinois and Michigan Canal, the weakest link in the system. Could the canal be enlarged? Or, should the locks and dams be continued up the Illinois and Des Plaines Rivers toward Chicago? Completion of the Sanitary and Ship Canal settled the matter in favor of the locks and dams. A 1908 referendum amended the Illinois constitution authorizing a $20 million bond issue and construction of the new locks and dams between Lockport and Utica.[28] Meanwhile, a utility company was about to preempt one of the dam sites for a hydropower project. The state suit to stop the utility dam resulted in rulings adverse to the waterway project: the Des Plaines River was not a navigable stream, and the utility company project was lawful.[29] This decision and the diversion suit between the sanitary district and the Corps of Engineers stopped planning for the state waterway temporarily.

The Rivers and Harbors Act of June 25, 1910[30] authorized the Corps of Engineers to study the possibility of a waterway from Lockport via Des Plaines and Illinois Rivers to the Mississippi. The Chief of Engineers reported to Congress on February 9, 1911. He recommended that the State of Illinois construct the project from Lockport to Utica using the $20 million bond issue. The Chief also recommended that the federal

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[26] *Id.* at 431.

[27] J. PUTNAM, *supra* note 14, at 137.

[28] L. COOLEY, *supra* note 21, at 32.

[29] People v. Economy Light & Power Co., 241 Ill. 290 (1909).

[30] Act of June 25, 1910, ch. 382, 36 Stat. 630.

government should take over and improve the Illinois River from Utica to the mouth, to the same dimensions as the state project.[31]

A state plan was prepared in 1915 and the Illinois Waterway Commission was established to implement it. The state applied for federal permit on June 3, 1915 but the Secretary of War denied the request on February 25, 1916; state legislation was defective, and the proposed locks were too small. The next year the Governor asked the Chief of Engineers to waive the permit requirement since the state court had ruled the Des Plaines River and the upper Illinois River non-navigable. The request was denied; the Chief of Engineers asserted both streams were navigable waters of the United States.[32] Thereupon, the United States sued to stop construction of the hydropower dam, based upon the utility's failure to obtain a federal permit.[33]

A new state waterway statute, which had been reviewed by the Chief of Engineers, was enacted by Illinois in 1919, and new project plans were prepared. The Corps of Engineers objected on the basis that the plan was too dependent on lake diversion flows greater than the 4,167 cfs authorized by the permit of June 30, 1910 to the sanitary district. A permit was granted on January 6, 1920, but it contained conditions unacceptable to the state relating to the diversion controversy. A revised permit was granted on March 6 while detailed engineering design work had already begun. The state awarded Contract No. 1, Marseilles Lock, in October;[34] the Federal Water Power Act became law on June 10.[35]

On April 21, 1921, the U.S. Supreme Court decided *Economy Light & Power Co. v. United States*,[36] in favor of the federal government. Although the Des Plaines and upper Illinois Rivers were determined to be navigable waters of the United States the utility had failed to obtain the federal permit or the assent of the state as required by the Rivers and Harbors Act of March 3, 1899.[37]

The federal nine-foot project on the Illinois River from Utica to the mouth was authorized January 21, 1927, on two conditions: that the state give the Henry and Copperas Creek dams to the federal government; and that the state project be deepened from eight feet to nine feet. The enacting statement made it clear no diversion was authorized. Shortly thereafter, Illinois transferred the Henry and Copperas Creek

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31 L. COOLEY, *supra* note 21, at 37-38.

32 ILL. DEPT. OF PUB. WORKS AND BLDGS., DIV. OF WATERWAYS SECOND ANN. REP. 3-4 (1920).

33 *See* Economy Light & Power Co. v. United States, 256 F. 792 (1919).

34 ILL. DEPT. OF PUB. WORKS AND BLDGS. DIV. OF WATERWAYS THIRD ANN. REP. 3-4 (1921).

35 Act of June 10, 1920, ch. 285, 41 Stat. 1063.

36 256 U.S. 113 (1921).

37 Act of Mar. 3, 1899, ch. 425, 30 Stat. 1121.

locks and dams to the Corps of Engineers. Construction on the state waterway was advancing rapidly. By 1929, however, it was clear the state bond issue was not sufficient to complete the waterway. The Governor gave the Secretary of War a tour of the project, and started intense negotiations for federal takeover and completion. The Chief of Engineers recommended takeover by the federal government provided Illinois use its remaining funds to build new bridges over the waterway.[38]

D. Diversion Litigation

The opinion in *Sanitary District of Chicago v. United States*,[39] found the lake diversion at Chicago unauthorized by Congress. The Great Lakes States of Wisconsin, Minnesota, Ohio, Pennsylvania, Michigan, and New York sued to stop the illegal diversion. The States of Missouri, Kentucky, Tennessee, Louisiana, Arkansas and Mississippi joined Illinois. Special Master Hughes was appointed June 7, 1926, and made his report on November 23, 1927. Meanwhile, the Supreme Court dismissed one count of New York concerning its claims for future hydropower development.[40]

Subsequently, the Court clearly affirmed the illegality of the sanitary diversion:

> Merely to aid the District in disposing of its sewage was not a justification, considering the limited scope of the Secretary's authority. He could not make mere local sanitation a basis for a continuing diversion. Accordingly, he made the permit of March 3, 1925, both temporary and conditional — temporary in that it was limited in duration and revocable at will, and conditional in that it was made to depend on the adoption and carrying out by the District of other plans for disposing of the sewage.[41]

Even the legality of the navigation diversion was questioned; "in the absence of direct authority from Congress for a waterway from Lake Michigan to the Mississippi, they show no rightful interest in the maintenance of the diversion."[42] A second decree on April 21, 1930 ordered phaseout of the illegal diversion.[43] A Corps permit issued on June 26, 1930 implemented the April decree. Here, the negotiations of the Governor to secure federal takeover of the Illinois Waterway project paid off. On July 3, 1930, Congress authorized the Illinois Waterway and provided "the water authorized at Lockport, Illinois, by the decree of the Supreme

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38 THE ILLINOIS WATERWAY, S. DOC. NO. 126, 71st Cong., 2nd Sess.

39 266 U.S. 405 (1925).

40 New York v. Illinois, 241 U.S. 488 (1927).

41 Wisconsin v. Illinois, 278 U.S. 367, 418 (1929).

42 *Id.* at 420.

43 Wisconsin v. Illinois, 281 U.S. 179 (1930).

Court of the United States rendered April 21, 1930. . .is hereby authorized to be used for the navigation of said waterway."[44] A Chief of Engineers report of December 7, 1933, concluded that the authorized diversion, 3,200 cfs, would be adequate for navigation if the Illinois River below Utica was improved with new locks and dams at Peoria, LaGrange, and Alton on the Mississippi to replace the old LaGrange and Kampsville locks and dams.[45] This revision to the Illinois Waterway project was authorized on August 30, 1935.

Meanwhile, a further decree of the Supreme Court ordered construction of the Chicago River lock and controlling works,[46] which was completed in 1938, and accelerated sewage treatment plant construction, which was completed in 1940. Lake diversion was stepped down to 1,500 cfs, plus domestic pumpage for a total of 3,200 cfs by January 1, 1938, and has remained at that level ever since. The Illinois waterway was completed that year with the opening of the new Peoria and LaGrange locks and dam. The only subsequent change in the waterway was the widening of the Calumet-Sag Channel (1955-1981). This project also replaced the Blue Island controlling works lock, whose gates were open all the time except when a normal lockage was requested, with the O'Brien lock and controlling works, 6.7 miles closer to the lake.

E. 1958 Suit

Lake diversion at Chicago and the navigation and sanitation projects governed by the 1929, 1930, and 1933 decrees and the acts of 1930 and 1935 continued essentially unchanged from 1938. Nevertheless, suits were filed by the Great Lakes States in 1958 to reopen *Wisconsin v. Illinois*. The complainants demanded return of treated sewage effluents to Lake Michigan. Special Master Maris was appointed June 29, 1960; he filed his report December 8, 1966.

In reviewing the 1929 opinion, the Special Master said, "The Court concluded that insofar as the diversion was not for the purpose of maintaining navigation it was without legal basis because made for an inadmissible purpose. . . ."[47] Then referring to the Illinois Waterway authorizing act of July 3, 1930, he said, "It is equally well settled that when Congress has exercised its power with respect to matters relating to navigable waters its action is conclusive."[48] Special Master Maris concluded the diversion was lawful within the 3,200 cfs limit imposed by Congress and no damages resulting on the Great Lakes to riparian own-

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[44] Act of July 3, 1930, ch. 847, 46 Stat. 918.

[45] ILLINOIS RIVER, ILL., H.R. DOC. No. 184, 73d Cong., 2d Sess. (1934).

[46] Wisconsin v. Illinois, 289 U.S. 395 (1933).

[47] A. MARIS, *supra* note 3, at 6.

[48] *Id.* at 388.

ers or states were legally recognized injuries.[49] These views were apparently the basis for the new U.S. Supreme Court decree in 1967 limiting Illinois' diversion, for all purposes, to 3,200 cfs.[50]

IV. DIVERSION MANAGEMENT

Currently, lake diversion at Chicago, in accordance with the 1967 decree is managed by the Metropolitan Sanitary District of Greater Chicago (MSDGC), the Corps of Engineers and the Illinois Department of Transportation, Division of Water Resources. MSDGC is a special district created to construct and operate the sanitary diversion system. It operates a regional system of sanitary interceptor sewers and sewage treatment plants. MSDGC collects several flow measurements and estimates needed for the diversion accounting system.

The Corps of Engineers is involved in the lake diversion on two levels. First, it operates and maintains the navigation features of the river-canal system including the locks at Lockport, O'Brien, and the Chicago River. Second, the Corps is responsible for supervising the diversion measurement and accounting to assure compliance with the decrees. Concurrently, the Illinois Department of Transportation, Division of Water Resources is responsible for diversion accounting and allocating the diverted flows among public water supply systems, sanitary districts, and other users and uses. This is performed through a water allocation permit program.[51] By combining regulatory controls with regional water planning, the state established policies, priorities, and strategies to best use Lake Michigan in balancing regional water supply and demand. Many more municipalities, including the city of Chicago, cooperate in data collection and planning efforts needed to manage the diversion. Additional flow measuring stations are operated by the U.S. Geological Survey under the cooperative stream gaging program.

A. Developments Under the 1967 Decree

The 1967 decree of the U.S. Supreme Court[52] forced the State of Illinois to assume direct and continuing responsibilities in managing the lake diversion. While the decree placed, for the first time, an absolute limitation on diversion of 3,200 cfs, it also left Illinois the greatest possible discretion in how and where the diversion would be used. This discretion has allowed the state to continue its policy of diverting treated wastewater and polluted stormwater out of the lake. In fact, the geographic scope of sanitary diversion has increased. The North Shore sani-

[49] *Id.* at 388-89, 392-93.

[50] Wisconsin v. Illinois, 388 U.S. 426 (1967).

[51] ILL. REV. STAT. 1983, ch. 19, §§119.1-120.11.

[52] 388 U.S. 426.

tary district has now abandoned all of its lakefront sewage treatment plants in Lake County and constructed new plants in the Chicago River and Des Plaines River watersheds which divert effluents from the lake. Of course, these new diversions had to be counted against the 3,200 cfs allowable. Similarly, effluents from process water treatment plants at steel mills along the Calumet River have been diverted via sanitary interceptor sewers.

The only remaining significant source of pollution on the Illinois lakefront is the backflow episodes caused by stormwater runoff. This source is being addressed by the TARP. The mainstream tunnel from Wilmette to Summit is now in service. But the ability to contain polluted stormwater is currently limited to the volume of the tunnel. Reservoir storage will be constructed later.

B. Lake Michigan Water Allocation Process

The 1967 decree provides that the Lake Michigan diversion:

> [M]ay be apportioned by the State of Illinois among its municipalities, political subdivisions, agencies, and instrumentalities for domestic use or for direct diversion into the Sanitary and Ship Canal to maintain it in a reasonable satisfactory sanitary condition in such a manner and amounts . . . as the State may deem proper . . . .[53]

Legislation delegating the apportionment responsibility to the Department of Transportation was enacted July 2, 1971. On July 21, 1972 the Department issued Administrative Order No. 1, Lake Michigan Allocation. The order was set aside by the circuit court of Lake County and remanded on June 13, 1973. The Department conducted extensive hearings and investigations between December 1974 and November 1976. A new order was issued April 15, 1977.[54] This order was upheld by the Illinois Supreme Court in 1979.[55]

The Department started hearings in April, 1980, for a third, permanent order. After conducting forty-eight hearings involving 10,000 pages of testimony and 176 exhibits, the current order was announced December 15, 1980.[56] The current order:

- — greatly increases public water supply in suburban Cook, DuPage, and Lake Counties;
- — reduces navigational makeup and discretionary diversion as the TARP project is completed;
- — increases stormwater reserve, 656 to 680 cfs;

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[53] *Id.* at 427-28.

[54] LMO 77-1, LAKE MICHIGAN WATER ALLOCATION OPINION, *supra* note 9.

[55] Village of Riverwoods v. Dept. of Transp., 77 Ill. 2d 130 (1979).

[56] ILL. DEPT. OF TRANSP., DIV. OF WATER RESOURCES, LMO 80-4, ALLOCATION OF WATER FROM LAKE MICHIGAN OPINION AND ORDER (1980).

— creates state reserve for contingencies;
— mandates water conservation practices; and
— reduces deep aquifer overdraft.

The governing statute has been amended several times as problems have surfaced in the allocation program. One such amendment concerned the need for emergency allocation. Amendments have also been made in conformity with the 1980 decree and finally in 1985 for conformity with the Great Lakes Charter.[57] Major new or increased consumptive uses from Lake Michigan now need a state permit.

The major problem now is to phase out deep aquifer overdraft before critical pumping levels are reached. Efforts must be accelerated to develop new sources of supply, especially the underutilized glacial drift and shallow dolomite aquifers. Water conservation efforts may also need to be strengthened. These steps will assure that Illinois can fully develop and will carefully manage its water resources.

The Department's Lake Michigan Water Allocation process consists of the following key elements:

— development of objectives to be achieved;
— a Department sponsored study of available supplies and projected future demands, including domestic, industrial and needs for direct diversion;
— an active public participation program during the entire process;
— formal adoption of Rules and Regulations for the allocation of water from Lake Michigan;
— holding formal allocation hearings for each applicant desiring to use Lake Michigan water;
— reviewing requests, balancing available supply against most likely projections of future demand, issuing allocation orders; and
— requiring certain water conservation practices of all applicants receiving Lake Michigan water.

The primary objectives of the Department's allocation program are:

1. to make the greatest amount of Lake Michigan water available for domestic use consistent with maintaining reasonable water quality in the Chicago Sanitary and Ship Canal;
2. to make the limited groundwater resources available to the communities in northeastern Illinois who will not have access to Lake Michigan as a source of supply;
3. to make long term (forty year) allocations so that communities receiving an allocation for the first time can secure the necessary financing to construct necessary transmission systems;
4. to consider the competing needs of all water users in the region so that allocations reflect the Department's best efforts to facilitate the region in light of long range needs and objectives; and

[57] *Great Lakes Charter*, GREAT LAKES REP. (Mar./Apr. 1985).

5. to require, pursuant to the requirements of the U.S. Supreme Court Decree and State law, that all users of Lake Michigan water conserve and manage the water resources of this region in accordance with the best modern scientific knowledge and engineering practice.

The development of these basic objectives provided a basis for the development of Rules and Regulations. These were adopted early in the allocation process and distributed so that all participants knew the policies and criteria that were to be used in making allocations.

Prior to the Department receiving formal requests for Lake Michigan water and receiving written and oral testimony at hearings, the Department, utilizing a consultant, undertook a comprehensive water supply and demand study. This study, in addition to providing an independent assessment of future water demands, also enabled the Department to establish an effective public participation program.

An effective public participation program enables the Department's consultant to obtain important information that would have otherwise been unavailable and also serves to educate the participants as to what they must do to justify their request for a Lake Michigan water allocation.

There are now 5.0 million people in northeastern Illinois who are dependent upon Lake Michigan for their potable water supply. By the year 2000, this total is predicted to increase to 6.7 million people.

The new allocation order allows eighty-six suburban communities to use Lake Michigan water for the first time. This is a significant increase in both population to be served with lake water, and in terms of actual area. The magnitude of this increase is illustrated by the fact that estimates of construction costs for the new regional water transmission systems to convey lake water to these new users are in excess of one-half billion dollars.

V. LEGAL STANDING OF ILLINOIS DIVERSION

A. Navigation

The total amount of the diversion, 3,200 cfs, and the general route down Illinois Waterway was authorized by Congress in the Rivers and Harbors Act of July 3, 1930, to serve navigation on the waterway.[58] This is a direct exercise of the commerce power over the affected navigable waters; therefore, the authorization is unassailable by states or the courts. Even so, the needs of navigation set boundary limits on how Illinois may use the diverted flows to meet water supply and sanitation objectives. For example, vessel traffic at the Chicago River and O'Brien locks causes

[58] Act of July 3, 1930, ch. 847, 46 Stat. 918.

a direct diversion which must be accommodated out of the 3,200 cfs limit. River-canal levels must be maintained within narrow limits. Stormflow drawdowns must be quickly restored to protect navigation by using more direct diversion if needed. This "navigation makeup" is another debit. Finally, as was noted earlier, more and more water supply is being diverted outside the watershed above Lockport.

B. Water Supply/Sanitary Diversion

As it is now governed by the 1967 decree, the water supply/sanitary diversion of Illinois is lawful because it is quantitatively within the navigation authorization and serves the navigation purpose. But it was first created to serve the policy of the state that effluents should be diverted away from the lake. That policy continues as reflected by the diversion of the North Shore sanitary district systems and by the ongoing construction of TARP. If Illinois ever decides to relax the sanitary diversion policy and return some highly treated effluents to the lake, its useable water supply could be multiplied many-fold beyond current withdrawals.

C. Illinois Authority

The 1967 decree covers Illinois from the Indiana state line to the Wisconsin state line; the 3,200 cfs limitation is absolute for Illinois. That is, Illinois cannot create new diversions anywhere for any purpose that would add to this amount.[59] Within the total, Illinois can add, delete, or change any of the diversions as long as the navigation purpose is maintained. Also, it must be remembered that the decrees do not limit withdrawals which do not involve effluent diversion. The Illinois diversion authority only governs those water uses within the scope of state authority such as water supply, sanitation, and drainage. It does not include navigation or lake level regulation, which are federal powers reserved to Congress.

The 1967 decree forced the state to assume a direct and permanent leadership role in planning, policy and management. In the long run, this state role may be the most important result. First, the full power of the state can be focused on solving metropolitan water supply and sanitary needs. That power is largely blind to myriad political subdivisions, overlapping jurisdictions, and watersheds which impede local governments. Second, the state has regional and natural interests which favor harmony and comity with the Great Lakes states and provinces.

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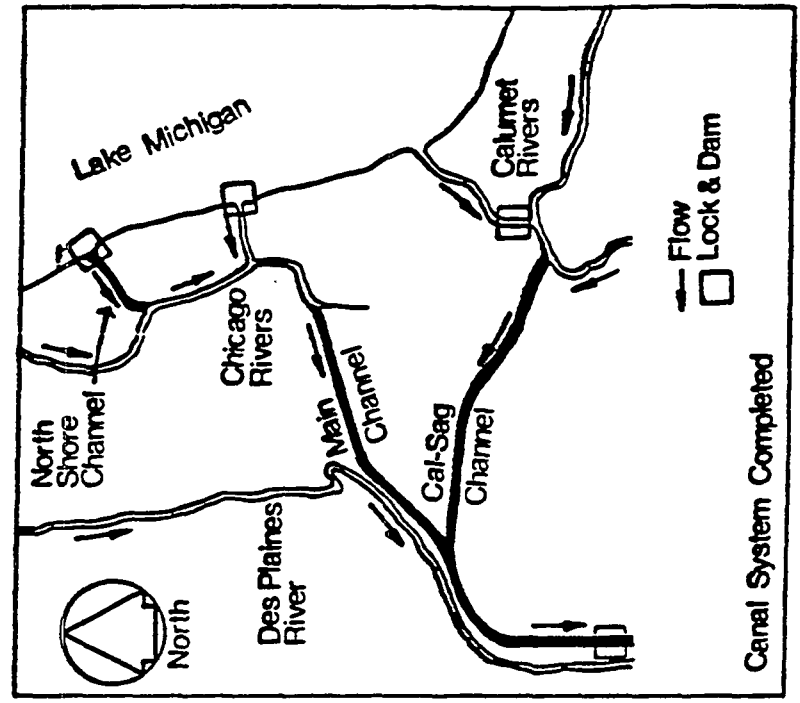
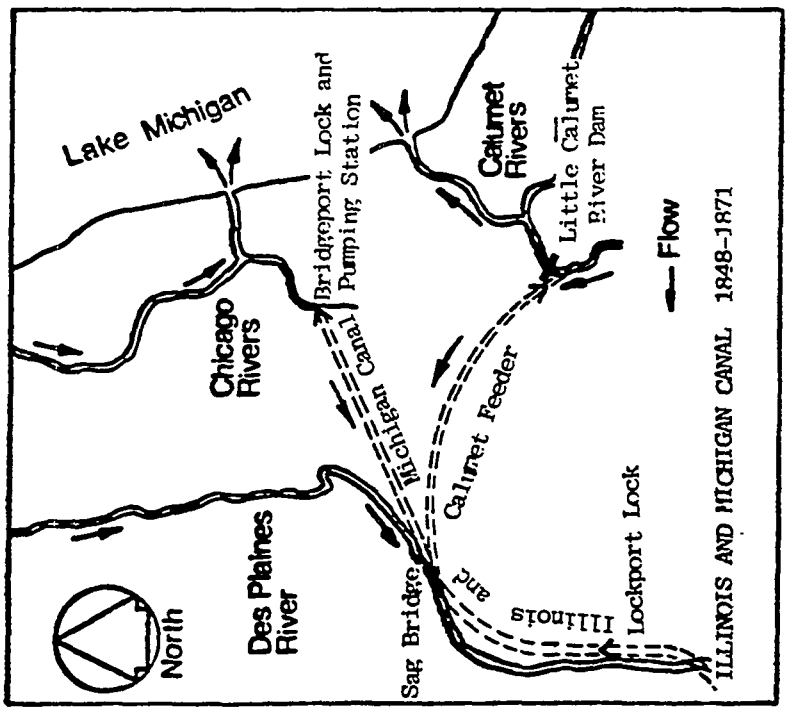
[59] 388 U.S. 426 (1967).

APPENDIX





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