

9-1-2012

## Opening the Floodgates and Draining the Great Lakes One Bottle at a Time: How Privatizing Water Resources Threatens the Great Lakes

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# OPENING THE FLOODGATES AND DRAINING THE GREAT LAKES ONE BOTTLE AT A TIME: HOW PRIVATIZING WATER RESOURCES THREATENS THE GREAT LAKES

RHONDA L. ROSS

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## I. ABSTRACT

The Great Lakes are an enormous and precious source of fresh water on earth. Although water in the Great Lakes has long been viewed as a public good, some private companies are seeing enormous profits from bottling and selling water from the Great Lakes ecosystem. Concern about privatization of water resources has resulted in a new interstate compact for the management of water resources in the Great Lakes Basin, as well as an international agree-

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ment with Canada. Unfortunately, the new laws have a loophole that allows private companies to withdraw significant quantities of groundwater and sell it as long as it is placed in containers holding 5.7 gallons or less. Individual states are handling permitting withdrawals in accordance with their own laws. For example, Michigan now requires withdrawals of more than 100,000 gallons of groundwater per day to be registered. Withdrawals of more than 250,000 gallons of groundwater per day for the purpose of bottling require a permit. These permits will not be issued if the withdrawal will have an adverse impact. Unfortunately, not all states have the same program. Moreover, there are no provisions requiring an evaluation of the cumulative impacts of large withdrawals from multiple locations in the multiple states bordering the Great Lakes. In short, the laws for managing water resources are improving, but there is still a long way to go to assure environmental protection and sustainable use of the water in the Great Lakes.

## II. INTRODUCTION

Protecting against diversion of water from the Great Lakes has long been a concern of the residents of Great Lakes states<sup>1</sup> and their Canadian counterparts.<sup>2</sup> The five lakes that make up the Great Lakes, in order of largest to smallest by volume of water are Lake Superior, Lake Michigan, Lake Huron, Lake Ontario, and Lake Erie.<sup>3</sup> The fresh water contained in the Great Lakes has long been a coveted resource as other areas of the country, and the world, experience drought conditions. Until several years ago, most of the concern was focused on the withdrawal of significant quantities of fresh water, directly from the Lakes, for export to other states and other countries.<sup>4</sup> Recently, concern has shifted from large withdrawals of lake water toward groundwater pumped into small containers, such as the typical half-liter bottles sold around the country as “spring water.”<sup>5</sup>

Michigan is perhaps the state most identified with the Great Lakes. As illustrated in Figure 1, Michigan consists of two peninsulas—both of which are primarily defined by being surrounded by four of the five Great Lakes. Lake Michigan borders the western region of Michigan’s Lower Peninsula, while

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1. Great Lakes States are those that have borders on or along at least one of the Great Lakes. There are eight such states: Michigan, Ohio, Indiana, Illinois, Wisconsin, Minnesota, Pennsylvania, and New York. The Canadian Provinces of Ontario and Quebec also border at least one of the Great Lakes.

2. See *Wisconsin v. Illinois*, 278 U.S. 367, 399 (1929) (court awarded Great Lakes states an injunction against the state of Illinois from pumping water from Lake Michigan into a canal to dilute the wastewater that the Sanitary District was pumping into the Chicago River); see also Christine A. Klein, *The Law of the Lakes: From Protectionism to Sustainability*, 2006 MICH. ST. L. REV. 1259, 1260 (2006).

3. *Great Lakes Fact Sheet*, ENVT’L PROTECTION AGENCY, <http://www.epa.gov/glnpo/factsheet.html> (last visited Sept. 9, 2012).

4. See 146 CONG. REC. 8991, 9112 (May 24, 2000) (statement of Rep. Bart Stupak concerning the permit issued to The Nova Group to fill container ships with water from Lake Superior and ship it for sale in China); see also MICHIGAN LAND USE INSTITUTE, LIQUID GOLD RUSH: CITIZENS CALL FOR LEGISLATIVE ACTION 3-4 (2001).

5. Klein, *supra* note 2, at 1270-71.

Lakes Huron and Erie form most of the eastern border. Lake Superior, the largest of the Great Lakes, borders Michigan's Upper Peninsula to the north.<sup>6</sup> Lakes Michigan and Huron form the southern border of the Upper Peninsula.

Citizens of the United States and Canada residing in the region bordering on the Great Lakes are fortunate enough to have millions of gallons of fresh water readily available for agricultural, recreational, various personal uses (e.g., drinking, cooking, cleaning, etc.), and even wasteful uses such watering lawns and decorative landscapes. Many people around the world are not nearly as fortunate.

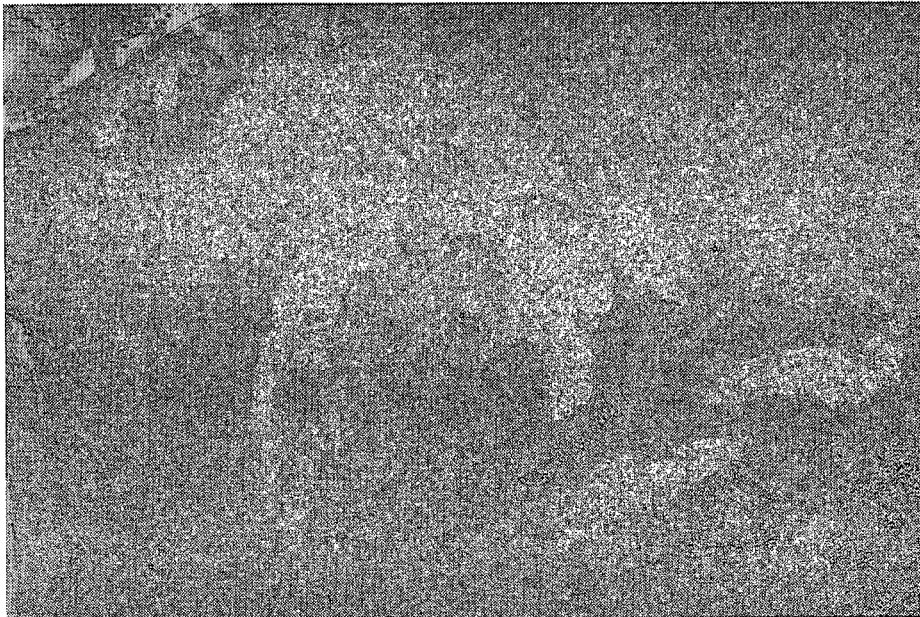


Figure 1: NASA Satellite Image of the Great Lakes'

#### A. WATER, WATER, ALL AROUND—BUT IT MAY NOT LAST FOREVER

National and international reports on droughts and shortages of fresh drinking water seem to proliferate by the day.<sup>7</sup> In fact, just two years ago the United Nations (UN) Deputy Secretary General stated “two-thirds of the world’s population will face a lack of water in less than twenty years, if current trends in climate change, population growth, rural to urban migration and

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6. ENVTL. PROTECTION AGENCY, *supra* note 3.

7. *Satellite Observations in Science Education*, NAT’L AERONAUTICS & SPACE ADMIN., <http://www.nasa.gov/audience/foreducators/9-12/features/satellite-observations-science-ed.html> (last visited Sept. 12, 2012).

8. *E.g.*, Keith Bradsher, *U.N. Food Agency Issues Warning on China Drought*, N.Y. TIMES (Feb. 8, 2011), <http://www.nytimes.com/2011/02/09/business/global/09food.html?pagewanted=all> (“The United Nations’ food agency issued an alert on Tuesday warning that a severe drought was threatening the wheat crop in China, the world’s largest wheat producer, and resulting in shortages of drinking water for people and livestock.”).

consumption continue.”<sup>9</sup> Problems with drought are not limited to developing countries; there are also serious problems associated with the lack of adequate water resources in the US.<sup>10</sup> According to the University of Nebraska-Lincoln’s National Drought Mitigation Center, “eighteen percent of the country is classified as under either extreme or exceptional drought [in 2011].”<sup>11</sup>

Droughts around the country and the world illustrate the dangers of water shortages, ranging from failure of agricultural crops, death of farm animals, lack of potable water for human consumption, inability of a region to support manufacturing operations, and energy generation. These examples from around the world illustrate the importance of properly managing water resources to assure sustainable use long into the future.

## B. PRIVATE COMPANIES ARE BOTTLING PUBLIC WATER RESOURCES

Interestingly, the issue of private companies seeking to withdraw groundwater to bottle and sell for profit has been a relatively recent issue in Michigan. It is unclear whether Nestlé Company, when it first applied for the permit to withdraw groundwater from an aquifer on the west side of Michigan, was prepared for the battle that ensued. The Great Lakes are very much a part of the identity of the people living in Michigan and most residents have a very strong protectionist view of the Lakes.<sup>12</sup> The Company had obtained “the groundwater rights to a 139-acre area” where “preliminary tests indicated that the land contained a suitable and reliable source of spring water.”<sup>13</sup> The Company applied for and received the appropriate permits from the State of Michigan.<sup>14</sup> However, once the public learned that a private company wanted to pump groundwater into bottles and sell it for a profit, neighbors organized the Michigan Citizens for Water Conservation (MCWC) and began fighting.<sup>15</sup>

The Nestlé incident did, however, drive the creation of new interstate laws and an international agreement on management of the water resources of the Great Lakes. Unfortunately, the current law contains a loophole that is ripe for exploitation of the fresh water resources in the Great Lakes region.<sup>16</sup> Although state, federal, and even international law places restrictions on large withdrawals and diversions from the Great Lakes, withdrawals of groundwater intended

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9. *Majority of World Population Face Water Shortages Unless Action Taken, Warns Migiros*, U.N. NEWS CENTRE (Feb. 5, 2009), <http://www.un.org/apps/news/story.asp?NewsID=29796&Cr=water&Cr1=agriculture>.

10. Karen Brooks, *Harsh Drought in South Hitting Far and Wide, Report Says*, THOMSON REUTERS (Aug. 1, 2011), [www.reuters.com/article/2011/08/01/us-drought-south-idUSTRE77060620110801](http://www.reuters.com/article/2011/08/01/us-drought-south-idUSTRE77060620110801).

11. Steve Smith, *‘Exceptional Drought’ Record for United States set in July*, U. NEB.-LINCOLN (Aug. 1, 2011), <http://newsroom.unl.edu/releases/2011/08/01/Exceptional+drought'+record+for+United+States+set+in+July>.

12. Klein, *supra* note 2.

13. *Mich. Citizens for Water Conservation v. Nestle Waters*, 737 N.W.2d 447, 450 (Mich. 2007).

14. *Id.*

15. *Id.* at 450-51.

16. James M. Olson, *Navigating the Great Lakes Compact: Water, Public Trust, and International Trade Agreements*, 2006 MICH. ST. L. REV. 1103, 1109 (2006).

for containers smaller than 5.7 gallons are exempt from such restrictions.<sup>17</sup> The eight Great Lakes states, as well as the Canadian Provinces of Ontario and Quebec, are lawfully able to issue permits to private companies to withdraw groundwater, place it into small plastic bottles or containers and sell it for profit.<sup>18</sup>

Failure to properly manage and regulate the fresh water resources in the Great Lakes region could have devastating ecological, economical, and social impacts in the region, the country, and the world. True stewardship of the Great Lakes requires management of not only the Great Lakes themselves, but also the streams, rivers, inland lakes, and groundwater that make up the Great Lakes Basin.<sup>19</sup> Failure to close the loophole that allows individual states and provinces to issue permits to companies who privatize water for profit could have devastating impacts on the health of the Great Lakes ecosystem as well as the health and economic well-being of residents in Michigan and throughout the Great Lakes Basin.

### III. FACTUAL OVERVIEW OF THE GREAT LAKES

The Great Lakes themselves are familiar and easily identifiable landmarks on maps and even from satellite photographs of earth. According to the US Environmental Protection Agency, the Great Lakes “are the largest system of fresh, surface water on Earth, containing roughly twenty-one percent of the world supply and eighty-four percent of North America’s supply.”<sup>20</sup> The National Aeronautics and Space Administration (NASA) satellite image in Figure 1 illustrates both the size and location of the Great Lakes.<sup>21</sup>

#### A. RELATIONSHIP BETWEEN GROUNDWATER, SURFACE WATER, AND THE GREAT LAKES

Although water withdrawn for bottling is not taken directly from the lakes, it is withdrawn from underground aquifers and these withdrawals can impact surface watercourses like rivers, streams, and lakes.<sup>22</sup> The US Geological Survey (“USGS”) estimates the total volume of water contained in the Great

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17. *Id.*

18. *Id.* at 1108.

19. *Id.* at 1104.

20. ENVTL. PROTECTION AGENCY, *supra* note 3; *see also*, N.G. GRANNEMANN, R.J. HUNT, J.R. NICHOLAS, T.E. REILLY, AND T.C. WINTER, US DEPT OF THE INTERIOR, US GEOLOGICAL SURVEY, THE IMPORTANCE OF GROUND WATER IN THE GREAT LAKES REGION, WATER-RESOURCES INVESTIGATIONS REPORT 00-4008 1 (2000) at 1, [http://water.usgs.gov/ogw/pubs/WRI004008/WRIR\\_00-4008.pdf](http://water.usgs.gov/ogw/pubs/WRI004008/WRIR_00-4008.pdf) (according to the US Department of the Interior, the Great Lakes “constitute the largest concentration of *unfrozen* fresh surface water in the western hemisphere” (emphasis added)).

21. ENVTL. PROTECTION AGENCY, *supra* note 3.

22. Grannemann et al., *supra* note 20, at 1.

Lakes to be 5,440 cubic miles (mi<sup>3</sup>),<sup>23</sup> equivalent to 5,990 trillion gallons of water.<sup>24</sup>

Feature	Great Lakes				
	Superior	Michigan	Huron	Erie	Ontario
Average Depth (feet)	483	279	195	62	283
Maximum Depth (feet)	1,332	925	750	210	802
Volume (cubic miles)	2,900	1,180	850	116	393
Water Surface Area (sq. miles)	31,700	22,300	23,000	9,910	7,340
Shoreline Length (miles)	2,726	1,638	3,827	871	712
Retention Time (years)	191	99	22	2.6	6

*Table 1: Characteristics of the Great Lakes*<sup>25</sup>

Although the quantity of water in the Great Lakes is enormous, there is significantly less groundwater within the area that forms the Great Lakes Basin. The USGS estimates the amount of groundwater to be approximately 1,000 mi<sup>3</sup> (1,101 trillion gallons), which amounts to less than one-fifth of the quantity of water contained in the Great Lakes themselves.<sup>26</sup> Figure 2 contains a USGS map of the Great Lakes Basin.<sup>27</sup>

The groundwater, surface water, and the water contained in the Great Lakes themselves are all closely inter-related.<sup>28</sup> As noted by the International Joint Commission (“IJC”),<sup>29</sup>

The Great Lakes aquatic ecosystem is made up not only of the lakes themselves, but also of the complex network of tributaries and groundwater on which the lakes depend. Changes to the lakes, the tributaries, or the ground-

23. *Id.*

24. To put this massive quantity of water into perspective, according to the Niagara Parks Commission of the Province of Ontario, Canada, this is enough water to cover all of North America with approximately 3.5 feet of water. *Niagara Falls Geology Facts and Figures*, NIAGARA PARKS COMM’N OF ONTARIO, <http://www.niagaraparks.com/media/geology-facts-figures.html> (last visited Aug. 29, 2012).

25. ENVTL. PROTECTION AGENCY, *supra* note 3.

26. Grannemann et al., *supra* note 22 at 1. Compare this to total volume of water in Great Lakes: 5,439 mi<sup>3</sup>. See ENVTL. PROTECTION AGENCY, *supra* note 3.

27. Grannemann et al., *supra* note 21, at 2.

28. *Id.* at 1.

29. The IJC was created by the 1909 Boundary Waters Treaty between the United States and Canada. The purpose of the IJC was to “investigate, resolve and prevent boundary water disputes between the two countries.” *Boundaries Water Treaty—History*, INT’L JOINT COMM’N, <http://bwt.ijc.org/index.php?page=history&hl=eng> (last visited Oct. 7, 2012).

water can alter the balance of the ecosystem of the region in significant and sometimes unpredictable ways.<sup>30</sup>

The USGS considers groundwater in the Basin to be a critical component of the ecosystem of the Great Lakes in that the groundwater “is, in effect, a large, subsurface reservoir from which water is released slowly to provide a reliable minimum level of water flow to streams, lakes, and wetlands.”<sup>31</sup>

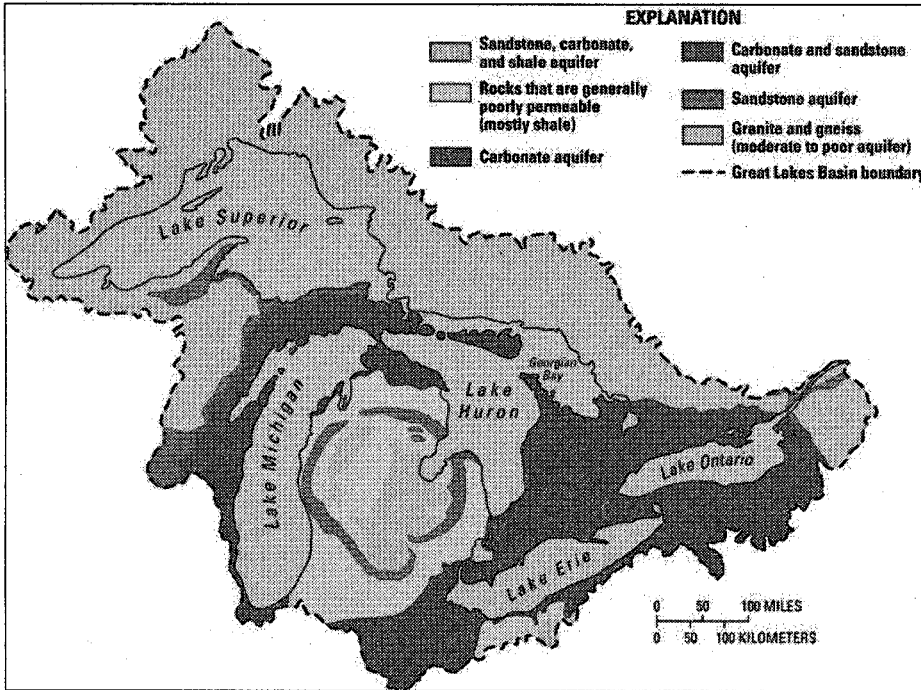


Figure 2: USGS Map of Great Lakes Basin and Bedrock Aquifers<sup>32</sup>

## B. GROUNDWATER WITHDRAWALS IMPACT THE BALANCE OF WATER IN THE GREAT LAKES

Water withdrawals, whether by diversions from the Great Lakes or withdrawals from groundwater sources, have the potential to dramatically impact the delicate equilibrium of the ecosystem of the Great Lakes. According to the IJC:

Removals of water from the Great Lakes Basin reduce the resilience of the system and its capacity to cope with future, unpredictable stresses. On an average annual basis, less than 1 percent of the water in the Great Lakes sys-

30. INT’L JOINT COMM’N, PROTECTION OF THE WATERS OF THE GREAT LAKES: FINAL REPORT TO THE GOVERNMENTS OF CANADA AND THE UNITED STATES (Feb. 22, 2000), available at [www.ijc.org/php/publications/html/finalreport.html](http://www.ijc.org/php/publications/html/finalreport.html).

31. Granneman et al., *supra* note 22, at 1.

32. *Id.* at 2.



tem—approximately 613 billion liters per day (162 billion gallons per day)—is renewable. Any water taken from the system has to be replaced in order to restore the system's lost resilience.<sup>33</sup>

In short, only a small percentage of the water in the Great Lakes Basin is renewable. Withdrawals at a rate that exceed the ability of the system to replenish water will begin to deplete the water in the system and thus have the potential to disrupt the delicate balance of the water cycle and result in adverse impacts on the ecosystem.

#### IV. BOTTLED WATER AND THE LAW

The laws governing the Great Lakes are numerous and complex. In addition to federal laws and regulations, each of the eight states with a border on one of the Lakes has its own system of laws and regulations. In addition, because the Great Lakes are a hydrogeological ecosystem shared with Canada, there are also Canadian laws, provincial laws, and international treaties between the United States and Canada.

##### A. THE AMAZING MAZE OF LAWS GOVERNING THE GREAT LAKES

The United States Constitution was traditionally interpreted to only allow the federal government to regulate waterways that were shared by two or more states or waterways that were between any state and another country.<sup>34</sup> In particular, most of the early federal legislation regarding waterways was related to “navigable waters.”<sup>35</sup> Until Congress passed the Clean Water Act of 1972,<sup>36</sup> other than providing for the building of canals to connect major waterways, the federal government was basically silent on the uses of the waters of the Great Lakes.<sup>37</sup> Only when a dispute arose between the states would federal courts would get involved.<sup>38</sup> To resolve disputes between the United States and Cana-

33. INT'L JOINT COMM'N, *supra* note 30, at 40.

34. See generally Jason J. Heinen, *How the Constitution Draws a “Line in the Sand” for the Extent of Federal Control Over Non-Navigable Waterways*, 5 LIBERTY U. L. REV. 115 (2010) (discussing the history of courts' application of the Commerce Clause to navigable and non-navigable waterways).

35. Act of May 17, 1796, ch. 29, 1 Stat. 464, 468; Act of Aug. 7, 1789, ch. 8, 1 Stat. 50, 51-52.

36. The Clean Water Act of 1972 addressed pollutant discharges to “navigable waters” which is defined in the Act as “the waters of the United States.” 33 U.S.C. § 1362(7) (1972). The U.S. Supreme Court recently defined “waters of the United States” as “only relatively permanent, standing or flowing bodies of water. The definition refers to water as found in ‘streams,’ ‘oceans,’ ‘rivers,’ ‘lakes,’ and ‘bodies’ of water ‘forming geographical features.’” Rapanos v. United States, 547 U.S. 715, 732-33 (2006).

37. See Bradley C. Karkkainen, *Managing Transboundary Aquatic Ecosystems: Lessons From the Great Lakes*, 19 PAC. MCGEORGE GLOBAL BUS. & DEV. L.J. 209, 213-14 (2006).

38. See, e.g., *Wisconsin v. Illinois*, 278 U.S. 367 (1929).

da, the two countries entered into the Boundary Waters Treaty of 1909.<sup>39</sup> The Boundary Waters Treaty created the IJC to address such disputes.<sup>40</sup>

### B. KEY FEDERAL LAWS AND INTER-STATE COMPACTS GOVERNING THE GREAT LAKES

There is no national water management policy in the United States. As noted above, traditionally, unless a dispute arose between states or countries, the United States has left the management of water resources to the states. Moreover, different states encounter significantly different issues related to water. Western states have traditionally had a scarcity of water and thus have more specific and stringent allocation laws and regulations than most Eastern states.<sup>41</sup>

There are two recent “agreements” intended to govern the management of the water resources in the Great Lakes Basin. The Great Lakes-St. Lawrence River Basin Sustainable Water Resources Agreement (“Agreement”) is an international agreement between Canada and the eight Great Lakes states.<sup>42</sup> However, since the US Constitution prohibits states from entering into treaties with other countries, this is merely an “agreement” and is not legally binding.<sup>43</sup> The second agreement, however, the Great Lakes-St. Lawrence River Basin Water Resources Compact (“Compact”) is legally binding.<sup>44</sup> Congress, through a joint resolution, enacted the Compact into law on October 3, 2008.<sup>45</sup>

### C. KEY STATE LAWS REGULATING BOTTLED WATER WITHDRAWALS

One of the reasons for the international Agreement and the Compact was to make certain there were appropriate mechanisms in place to properly manage the water resources in the Great Lakes Basin. There had previously been numerous interstate and international agreements over management of the water resources in the Great Lakes, but they were ineffective. Either they were not prescriptive enough, or they simply did not provide a vehicle for monitoring the use or abuse of water resources.<sup>46</sup> The current Agreement with Canada

39. Treaty between the United States and Great Britain Relating to Boundary Waters, and Questions Arising between the United States and Canada, U.S. - Gr. Brit., Jan. 11, 1909, 36 Stat. 2448.

40. *Id.* at 2449-50.

41. Robert Haskell Abrams, *Interstate Water Allocation: A Contemporary Primer for Eastern States*, 25 U. ARK. LITTLE ROCK L. REV. 155, 155 (2002).

42. Great Lakes–St. Lawrence River Basin Sustainable Water Resources Agreement, Council of Great Lakes Governors, Dec. 13, 2005, [http://www.cglg.org/projects/water/docs/12-13-05/Great\\_Lakes-St\\_Lawrence\\_River\\_Basin\\_Sustainable\\_Water\\_Resources\\_Agreement.pdf](http://www.cglg.org/projects/water/docs/12-13-05/Great_Lakes-St_Lawrence_River_Basin_Sustainable_Water_Resources_Agreement.pdf).

43. See U.S. CONST. art. I, § 10, cl. 1; art. II, § 2, cl. 2.

44. An interstate compact is an agreement between states, which each state will enact legislation to implement the terms of the compact. Congress must approve the interstate compact for it to be legally enforceable. Great Lakes–St. Lawrence River Basin Water Resources Compact, Pub. L. No. 110-342, 122 Stat. 3739 (2008); Noah D. Hall, *Toward a New Horizontal Federalism: Interstate Water Management in the Great Lakes Region*, 77 U. COLO. L. REV. 405, 410-11, 445 (2006).

45. Great Lakes–St. Lawrence River Basin Water Resources Compact, *supra* note 44.

46. See Hall, *supra* note 44, at 423-31.

and interstate Compact are much more workable—assuming all the parties dedicate the necessary resources.<sup>47</sup>

There is, however, one major flaw in the Compact: it allows for the withdrawal of groundwater as long as the container the water is placed in is less than 5.7 gallons.<sup>48</sup> Specifically, the Compact requires the states to carefully restrict and regulate “diversions” of water from the Great Lakes.<sup>49</sup> It also requires the states to treat “Bulk Water Transfers” as though they are diversions.<sup>50</sup> However, the Compact defines a Bulk Water Transfer as:

Bulk Water Transfer. A Proposal to Withdraw Water and to remove it from the Basin in any container greater than 5.7 gallons shall be treated under this Compact in the same manner as a Proposal for a Diversion. Each Party shall have the discretion, within its jurisdiction, to determine the treatment of Proposals to Withdraw Water and to remove it from the Basin in any container of 5.7 gallons or less.<sup>51</sup>

In short, the Compact does not address withdrawals in containers smaller than 5.7 gallons. The individual states are left to regulate those withdrawals. Thus, some states may be more stringent and restrictive than others. For example, Michigan requires any company proposing to withdraw 200,000 gallons per day for bottling to demonstrate that there will not be an adverse impact.<sup>52</sup> There is no requirement that other states adopt similar restrictions.<sup>53</sup> Thus, the cumulative impact of withdrawals for sale as bottled water is essentially unregulated by the Compact.

## V. BOTTLED WATER AND ITS IMPACT ON THE GREAT LAKES

### A. HISTORY AND GROWTH OF THE BOTTLED WATER INDUSTRY

Per capita consumption of bottled water in the United States has increased dramatically in the last few years. Approximately 8.6 billion gallons of bottled water were consumed in the United States in 2008.<sup>54</sup> One estimate places the sale of bottled water at eighty-five million bottles per day in the United States.<sup>55</sup> The sale of bottled water is a large and profitable worldwide business. According to Nestlé, the largest seller of bottled water in the world, in 2010, the com-

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47. *Id.* at 435.

48. Great Lakes–St. Lawrence River Basin Water Resources Compact § 4.12, 122 Stat. at 3757.

49. *Id.*

50. *Id.*

51. *Id.*

52. Safe Drinking Water Act, MICH. COMP. LAWS. ANN. § 325.1017 (West 2008).

53. Great Lakes–St. Lawrence River Basin Water Resources Compact §3.3(2), 122 Stat. at 3746.

54. Zhihua Hu et al., *Bottled Water: United States Consumers and Their Perceptions of Water Quality*, 8 INT’L J. ENVTL. RES. & PUB. HEALTH 565 (2011).

55. *Id.* at 567.

pany had seven brands in the top ten largest selling brands of bottled water with sales of \$ 8.7 billion.<sup>56</sup>

Nestlé claims that per capita bottled water consumption was 1.6 gallons in 1976 whereas it was 28.5 gallons per capita by 2010.<sup>57</sup> Specifically, Nestlé claims:

Per capita consumption of bottled water has risen steadily since 1976, and the bottled water category has managed to more than double its per capita consumption level since 1995, when consumers drank an average of 11.7 gallons. After some broad-based softness in beverage category sales in 2008 and 2009, the US bottled water market experienced an above average comeback in 2010, advancing 0.9 pts per capita over 2009.<sup>58</sup>

Unfortunately, with twenty-eight bottling facilities in North America, some of the increased volume of water being sold by Nestlé is coming from the Great Lakes water system.<sup>59</sup>

Though mineral waters were known to have existed during Roman times and commercialized in the 1700's, bottled mineral water lost most of its popularity in US cities after the advent of chlorinated public water systems.<sup>60</sup> That is until the 1970's when a French company named Perrier started a major ad campaign in the United States to market their sparkling mineral water as a healthy alternative beverage.<sup>61</sup> Perrier's campaign was apparently successful as "[b]etween 1990 and 1997, bottled water sales shot from \$115 million to \$4 billion."<sup>62</sup> Moreover, bottled water became so popular, bottled water sales passed juice sales in 1993, coffee in 2003, and milk in 2005.<sup>63</sup>

Unfortunately, there is no uniform system in place to identify the number or location of bottling facilities in the Great Lakes region. Some states, such as New York, have a list of certified water bottling facilities.<sup>64</sup> Michigan requires large quantity water users to register with the state.<sup>65</sup> However, most of those registrants are agricultural users and not bottlers. Michigan has only permitted one facility to withdraw groundwater for bottling purposes. That is the Nestlé

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56. NESTLE WATERS NORTH AMERICA, <http://www.nestle-watersna.com/OurBusiness.htm> (last visited Oct. 16, 2012).

57. *Id.*

58. *Id.*

59. *Id.*; see also Kari Lydersen, *Bottled Water at Issue in Great Lakes; Conservation and Commerce Clash*, WASH. POST, Sept. 29, 2008, at A07.

60. See European Federation of Bottled Waters, *Bottled Water Facts: History of Bottled Water*, <http://www.efbw.eu/bwf.php?classement=01> (last visited Oct. 16, 2012); see also Noah Hall, *A Brief History of Bottled Water in America*, GREAT LAKES L. BLOG (Mar. 26, 2009), <http://www.greatlakeslaw.org/blog/2009/03/a-brief-history-of-bottled-water-in-america.html>.

61. Hall, *supra* note 44.

62. *Bottled Water*, COLUMBIA WATER CENTER—LEARN MORE, [http://admin.water.columbia.edu/?id=learn\\_more&navid=bottled\\_water](http://admin.water.columbia.edu/?id=learn_more&navid=bottled_water) (last visited Oct. 16, 2012).

63. *Id.*

64. See, e.g., *NYS - Certified Bottled Water Program*, N.Y. DEP'T OF HEALTH, [http://www.health.ny.gov/environmental/water/drinking/bulk\\_bottle/bottled.htm](http://www.health.ny.gov/environmental/water/drinking/bulk_bottle/bottled.htm) (last visited Oct. 17, 2012).

65. *DEQ—Water Use Program*, MICH. DEP'T OF ENVTL. QUALITY, [www.mi.gov/wateruse](http://www.mi.gov/wateruse) (last visited Oct. 17, 2012); see also *Safe Drinking Water Act*, *supra* note 52.

facility in Mecosta County, Michigan. The facility bottles and sells that water under the brand name "Ice Mountain." Wisconsin has recently started a program similar to the large quantity withdrawal program in Michigan. Under the program, any user who withdraws more than seventy gallons per minute or 100,000 gallons per day or more must register and receive approval from the Wisconsin Department of Natural Resources.<sup>66</sup> Ohio also has a registration program for withdrawals of seventy gallons per minute or 100,000 gallons per day.<sup>67</sup>

Unfortunately, there is no requirement that any state that licenses, permits or registers large quantity withdrawals coordinates such withdrawals with other states in the Great Lakes Basin. So, although some of the states, particularly Michigan, now have a detailed program for evaluating and permitting large quantity withdrawals, there is no mechanism to evaluate whether neighboring states are planning to permit similar withdrawals.

## B. ECOLOGICAL AND ENVIRONMENTAL IMPACT ON THE GREAT LAKES

The law has often treated groundwater with less regard than surface water. After Nestlé obtained its permit to withdraw substantial quantities of groundwater from an aquifer in West Michigan, a number of citizens organized and sued to try to stop Nestlé. In the *Michigan Citizens for Water Conservation v. Nestlé Water North America, Inc.*, the Michigan Attorney General attempted to convince the Michigan Court of Appeals that groundwater needed to be treated as "interrelated" with, not separate from, surface water:

Lack of scientific knowledge about the source and movement of groundwater was a primary reason for the disparate treatment of groundwater and surface water at early common law. While surface water could be followed as it flowed across property, groundwater was by nature hidden, and its movements appeared inexplicable. The science of hydrology has now advanced so that hydrologists can, with some reliability, map groundwater reservoirs and predict the flow of water. More importantly, hydrologists now know that groundwater and surface water are not distinct entities. Each is part of an interrelated water system; groundwater use may affect a surface water body, and surface water use may affect a groundwater reservoir.<sup>68</sup>

Depending on the quantity of water being withdrawn, companies pumping groundwater into bottles for retail sale can have a significant adverse impact on aquifers, rivers, lakes, streams, and nearby ecosystems. As noted by the IJC in their 2000 report, *Protection of the Waters of the Great Lakes* ("IJC 2000 Report"), "[h]uman intervention has affected the Great Lakes ecosystem at the local level as well as at the system-wide level, and the effects (impacts) are both

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66. WIS. STAT. § 281.346(4M) (2011).

67. OHIO REV. CODE ANN. § 1521.16 (LexisNexis 2012).

68. Brief for Mich. Dep't of Envtl. Quality as Amicus Curiae, Mich. Citizens for Water Cons. v. Nestle Waters N. Am., 709 N.W.2d 174 (2005) (No.254202), 2005 WL 5956022 at 30.

short-term and long-term.”<sup>69</sup> The IJC 2000 Report goes on to note “[g]roundwater withdrawals at rates high enough to warrant concern have been and are taking place at a number of locations.”<sup>70</sup> Unfortunately, the IJC 2000 Report also notes “groundwater consumption and groundwater recharge in the Great Lakes Basin are not well understood.”<sup>71</sup>

Unfortunately, there has not been a tremendous amount of published research regarding the interrelationship between groundwater consumption, recharge, or the impact of that cycle on lakes, streams, rivers, etc. However, some basic impacts can be predicted such as reductions in the quantity of water in aquifers, as well as unquantifiable but expected impacts on the plant and animal life co-existing in the ecosystem supplied by the groundwater.<sup>72</sup>

There are, however, some interesting ongoing research programs. For example, on May 31, 2011, the *New York Times* reported that researchers at the University of California’s Center for Hydrologic Modeling discovered that, through the use of satellite data, “small variations in the earth’s gravity... identify trouble spots around the globe where people are making unsustainable demands on groundwater, one of the planet’s main sources of fresh water.”<sup>73</sup>

### C. SOCIAL AND ECONOMIC IMPACTS OF PRIVATIZING WATER

The social and economic impacts of privatizing water in the Great Lakes Basin could be enormous. Traditionally, the Great Lakes have been held in “public trust” for the good of the people.<sup>74</sup> When the states issue permits that allow companies to withdraw that water and sell it for private profit, they are essentially invalidating that public trust.

At least one billionaire, T. Boone Pickens, a Texas oil baron, sees money in groundwater.<sup>75</sup> Mr. Pickens has purchased land and groundwater rights and plans to “pump 323,000 acre-feet of water per year via pipeline to ‘regions that desperately need it.’”<sup>76</sup> Mr. Pickens has effectively prepared to treat water as a commodity just like petroleum. Water, like petroleum, is of limited supply and the demand for it is growing rapidly. Petroleum has made the lives of people in developed countries more comfortable by providing energy for light, heating, and cooling. Petroleum has also played a role as both an energy source and a feedstock for manufacturing. However, unlike petroleum, water is necessary for survival. The very basic necessities upon which life on this planet depend—like clean air and clean water—should not be treated as com-

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69. INT’L JOINT COMM’N, *supra* note 30.

70. *Id.* at 24.

71. *Id.*

72. *Id.* at 23-24.

73. Felicity Barringer, *Groundwater Depletion Is Detected from Space*, N.Y. TIMES, May 31, 2011, at D1.

74. Brief for Mich. Dep’t of Envtl. Quality as Amicus Curiae, Mich. Citizens for Water Cons. v. Nestle Waters N. Am., 709 N.W.2d 174 (2005) (No.254202), 2007 WL 11221645 at \*10.

75. See Dean Baxtresser *Antiques Roadshow: The Common Law and the Coming Age of Groundwater Marketing*, 108 MICH. L. REV. 773, 773 (2010).

76. *Id.* at 774.

modities to be bought and sold by the highest bidder. Privatizing water resources will only make it more expensive and less available to those who need it most. Although there may be some humanitarian reasons for reallocating some water resources, such allocations should not be based upon ability to pay and profit margins.

## VI. RECOMMENDATIONS

The use, and potential abuse, of fresh water from the Great Lakes is of great concern. The Great Lakes are a natural resource treasure and are important to the health, welfare, and economic wellbeing of the Great Lakes states, as well as Canada. In his article, "All (Water) Politics is Local: A Proposal for Resolving Transboundary Water Disputes," attorney Jeffrey Dornbos quotes an old Aztec proverb: "The frog . . . does not drink up the pond in which he lives."<sup>77</sup> This proverb is particularly appropriate when planning sustainable use of the Great Lakes to ensure that they will remain national treasures for future generations. Without a coordinated approach between individual states, the federal government, provinces, and Canada, the Great Lakes could be drained for profit—one plastic bottle at a time.

### A. RECOMMENDATIONS FOR ASSURING SUSTAINABLE USE OF THE GREAT LAKES

First and foremost, in order to assure that the Great Lakes are preserved and protected, decisions regarding the use and management of water resources should be based on the best available scientific information about the entire ecosystem in the Great Lakes Basin. Lakes, rivers, and aquifers do not recognize state or international boundaries. Each governing entity should be required to conduct the same level of scientific investigation and evaluation before granting licenses for the use or diversion of water from the Great Lakes region.

Second, there needs to be more coordination on data collection and research related to the Great Lakes. The IJC recently noted that there is surprisingly little data regarding groundwater in the Great Lakes Basin:

Despite the development of new scientific tools, the funding, instrumentation and analytical capacity required to monitor basin groundwater quality and quantity has declined substantially in the last twenty years. Although modeling has improved and now offers impressive capability to inform decision makers about groundwater quality and quantity, the erosion in the collection of baseline hydrogeological data precludes meaningful model calibration or application in many parts of the basin.<sup>78</sup>

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77. Jeffrey S. Dornbos, *All (Water) Politics Is Local: A Proposal for Resolving Transboundary Water Disputes*, 22 FORDHAM ENVTL. L. REV. 1, 1 (2010).

78. Groundwater in the Great Lakes Basin, IJC Great Lakes Science Advisory Board of the Int'l Joint Comm'n, Feb. 2010, 1-2 (2010), available at <http://www.ijc.org/php/publications/pdf/ID1637.pdf>.

There needs to be a coordinated initiative to increase and improve monitoring and analysis of groundwater in the Great Lakes Basin. If decisions regarding the management of the Great Lakes are to be based on scientific information, that information must first be collected and analyzed.

#### B. RECOMMENDED CHANGES TO STATE, FEDERAL, AND INTERNATIONAL LAW

Although governments should adopt numerous changes to state, federal and international laws to assure better protection of the water resources in the Great Lakes Basin, the first change should be to close the loophole in the Great Lakes Compact that allows for unlimited withdrawals as long as the withdrawals are for containers less than 5.7 gallons. There should be more stringent requirements governing such withdrawals. In particular, in addition to closing the loophole for 5.7-gallon containers, there should be the requirement that the states coordinate their reviews of such withdrawals to make certain that the aggregate total of withdrawals will not cause any harm to the Great Lakes ecosystem. Such evaluations must consider the impact of withdrawals on the entire ecosystem, not just the aquifer involved.



