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Capping the Bottle on Uncertainty: Closing the Information Loophole in the Great Lakes - St. Lawrence River Basin Water Resources Compact

Jeffrey S. Dornbos

NOTES

CAPPING THE BOTTLE ON UNCERTAINTY: CLOSING THE INFORMATION LOOPHOLE IN THE GREAT LAKES–ST. LAWRENCE RIVER BASIN WATER RESOURCES COMPACT

"When the Well's dry, we know the Worth of Water."

–Benjamin Franklin[1]

Will the Great Lakes be depleted by "water barons"[2] who profit by withdrawing Great Lakes water, placing it into bottles, and selling it to thirsty consumers around the world? Concern that such depletion might take place resurfaced in 1998, when Nova Group, a Canadian organization, devised a plan to help meet the growing demand for water in Asia by shipping Great Lakes water to China.[3] Nova Group received a five-year permit from the Ontario Ministry of Environment to export 158 million gallons of water per year from Lake Superior.[4]

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[1] BENJAMIN FRANKLIN, POOR RICHARD'S ALMANACK 132 (1746), *reprinted in* 3 PAPERS OF BENJAMIN FRANKLIN 62 (Leonard W. LaBaree ed., 1961).

[2] Gitte Laasby, *U.S. House Ratifies Great Lakes Compact*, MERRILLVILLE POST-TRIB., Sept. 24, 2008, at A8.

[3] *See* PETER ANNIN, THE GREAT LAKES WATER WARS 193 (2006).

[4] *See id.* at 194 ("The document gave the Nova Group permission to export 158 million gallons of water to Asia per year—one tanker at a time."); *see also* DAVID R. BOYD, UNNATURAL LAW: RETHINKING CANADIAN ENVIRONMENTAL LAW AND POLICY 57 (2003) (stating that the permit allowed shipment of 600 million liters, the metric equivalent of 158 million gallons, of water per year).

Ontario officials eventually cancelled the permit,[5] but the episode led to a cry to "create a modern, binding, international water-management system to regulate Great Lakes withdrawals for the next century and beyond."[6] As a result, legislators enacted two agreements: (1) the Great Lakes–St. Lawrence River Basin Sustainable Water Resources Agreement,[7] a non-binding agreement between the United States and Canada to implement policies protecting Great Lakes water from diversions; and (2) the Great Lakes–St. Lawrence River Basin Water Resources Compact (Compact),[8] a binding agreement among the eight Great Lakes states.[9]

Enactment of the Compact, however, has not resolved the ongoing debate over the potential threat of exporting water from the Great Lakes. Rather, enactment of the Compact has sparked a new debate over a provision in the Compact that some argue will make exporting Great Lakes water easier, the so-called "bottled water loophole." The Compact, which aims to protect the long-term sustainability of the Great Lakes, generally prohibits the transfer of water from the Great Lakes basin to other locations.[10] Under the Compact, for example, Las Vegas would be prohibited from building a pipeline to pump water out of the Great Lakes to meet its growing water demand. Because of the bottled water exemption, however, private companies would not be prohibited from selling the same Great Lakes water to Las Vegas, as long as the water was incorporated into bottles rather than pumped directly.[11] The distinction between permitting the export of water in products but not pipes has been described as the "bottled water loophole" and has sparked considerable debate.

The debate surrounding the so-called bottled water exemption has centered on whether or not bottled water companies should be permitted to withdraw, bottle, and sell water from the Great Lakes. One side of the debate argues that the bottled water exemption will permit companies to bottle and sell so much water that it will

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[5] *See* BOYD, *supra* note 4, at 57 (noting that "[i]n response to vocal public opposition, the Ontario government quickly cancelled Nova's permit").

[6] ANNIN, *supra* note 3, at 196; *see also* BOYD, *supra* note 4, at 58 (observing that the Nova permit, as well as other similar proposals, forced the Canadian government to "finally take action on bulk water exports").

[7] Great Lakes–St. Lawrence River Basin Sustainable Water Resources Agreement, Dec. 13, 2005, *available at* http://www.cglg.org/projects/water/docs/12-13-05/Great_Lakes-St_Lawrence_River_Basin_Sustainable_Water_Resources_Agreement.pdf [hereinafter Water Agreement].

[8] Pub. L. No. 110-342, 122 Stat. 3739 (2008) [hereinafter Compact].

[9] *See* ANNIN, *supra* note 3, at 211–12.

[10] *See* Compact § 4.8, 122 Stat. at 3752 (prohibiting all diversions of water from the Great Lakes Basin unless permitted under the Compact).

[11] *See id.* § 1.2, 122 Stat. at 3740–41 (noting that a diversion does not include water transferred out of the basin as part of a "product," which encompasses bottled water).

deplete the resource and undermine the Compact's purpose of ensuring the long-term sustainability of the Great Lakes basin.[12] The other side claims that eliminating the bottled water exemption will impose unnecessary costs because exporting bottled water and other water-containing products will have no adverse long-term effects on the Great Lakes system.[13]

Both sides of the debate ground their arguments on different assumptions about the long-term effect on the Great Lakes basin of exporting bottled water. Determining which assumption is correct is difficult because there is considerable uncertainty about the future cumulative impact of removing water from the Great Lakes basin in bottles and other small containers.[14] More information is needed to better evaluate each side's position.

This Note presents a different "loophole" in the Compact—an "information loophole." The information loophole exists because the Compact requires Great Lakes states to develop a registration and reporting system for water uses but mandates that only some, not all, water uses are reported.[15] Specifically, if bottled water companies and other producers were not exempted from the ban on diversions, they would need to report all of the water that leaves the basin in bottles. Because they are exempted, however, only those who withdraw over 100,000 gallons per day are required to register and report under the Compact, unless individual states adopt more stringent requirements.[16] Moreover, even for those withdrawals that are reported, the Compact does little to address the inaccurate reporting that results from estimating withdrawals, and inconsistencies across the basin in calculating how much water is used up in different processes and not returned to the basin.[17] Finally, while the Compact

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[12] Kari Lydersen, *Bottled Water at Issue in Great Lakes: Conservation and Commerce Clash*, WASH. POST, Sept. 29, 2008, at A7; Susan Saulny, *Congress Nears Ban on Diverting Water from Great Lakes Basin*, N.Y. TIMES, Sept. 23, 2008, at A18.

[13] Lydersen, *supra* note 12; Saulny, *supra* note 12.

[14] *See* INT'L JOINT COMM'N, PROTECTION OF THE WATERS OF THE GREAT LAKES: FINAL REPORT TO THE GOVERNMENTS OF CANADA AND THE UNITED STATES 22 (2000), *available at* http://www.cglg.org/projects/water/docs/IJC2000Report.pdf [hereinafter IJC 2000 REPORT] ("For the 21st century, there is a great deal of uncertainty regarding factors such as future consumptive use, small-scale removals of water, and climate change. . . . Although there are insufficient data and inadequate scientific understanding to place precise estimates on the magnitude and timing of such impacts, the impacts could be significant.").

[15] *See* Compact § 4.1, 122 Stat. at 3747–48.

[16] *See id.* § 4.1.3, 122 Stat. at 3747–48.

[17] *See* VICTORIA PEBBLES, GREAT LAKES COMM'N, MEASURING AND ESTIMATING CONSUMPTIVE USE OF THE GREAT LAKES WATER 15 (2003) ("[C]onsumptive use data is often an estimate of an estimate – the original withdrawal is estimated and the consumptive use coefficient is an estimate."); *see also* ENV'T CAN. & U.S. ENVT'L PROT. AGENCY, STATE OF THE GREAT LAKES 2009, at 287–88 (2009) [hereinafter STATE OF THE GREAT LAKES 2009], *available at* http://binational.net/solec/sogl2009/SOGL_2009_en.pdf (noting

stresses that information about withdrawals shall be made publicly available,[18] it permits states to report aggregate information and to withhold information that a state determines to be confidential.[19] This Note argues that this "information loophole" should be closed in order to reduce uncertainty and improve decision making about the cumulative effect of exporting bottled water and other water-containing products from the Great Lakes basin.

Part I presents the ongoing debate over the Compact's treatment of bottled water. It gives an overview of the debate between those who support the bottled water exemption, referred to in this Note as the "developers," and those who oppose the bottled water exemption, referred to in this Note as the "preservationists." Part I also describes the events leading up to the Compact. Among these events was the completion of a study that found that the cumulative effect of consumptive uses like bottling water and small-scale removals of water from the Great Lakes basin, while uncertain, presented a threat to the long-term sustainability of the Great Lakes. Part I argues that the intense debate over bottled water in the Great Lakes is due, in part, to different approaches by the developers and preservationists to environmental decision making in the face of scientific uncertainty. Both approaches would benefit from more information about consumptive uses and small-scale removals of water.

Part II begins by describing the Compact's so-called "bottled water loophole." Part II goes on to present the Compact's "information loophole," and argues that the only way to resolve the debate over bottled water, and other similar debates, is to close the information loophole. Closing the information loophole will require both improving measurement and reporting of water use and making data available to the general public.

Part III argues that the Great Lakes states should require registration and reporting for all non-negligible withdrawals.[20] Specifically, Part III proposes three concrete steps to increase the amount of information available to decision makers and reduce uncertainty. First, all non-negligible withdrawals[21] should be reported

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that "[c]onsumptive use is currently inferred by multiplying withdrawals against various coefficients, depending on use type, but finding that due to rudimentary estimation techniques, "[t]here are inconsistencies in the coefficients used by the various states and provinces.").

[18] *See* Compact § 4.1.5, 122 Stat. at 3748.

[19] *See id.* § 8.3, 122 Stat. at 3762–63.

[20] Although this Note suggests all withdrawals should be reported, it focuses solely on the Compact's reporting and registration requirements for those who incorporate water into products.

[21] The Compact defines a withdrawal as "the taking of water from surface water or

in the same way as diversions,[22] removing the exemption for withdrawals that are less than 100,000 gallons per day. Second, to ensure accuracy in reporting, withdrawals should be metered and audited on a regular basis. Third, information about the amount of water that is withdrawn, incorporated into products, and shipped out of the basin should be made available to the public. Together, these three changes would help to improve decision making about contentious issues, such as the so-called "bottled water loophole."

I. THE UNCERTAIN CUMULATIVE IMPACT OF WITHDRAWALS

A. The Debate over the Compact's Bottled Water Loophole

The ongoing debate over the bottled water exemption has been characterized as an intense clash between "conservation and commerce."[23] For analytical purposes, this Note characterizes the debate as existing between two conflicting viewpoints: (1) the "commerce" side of the debate—those who argue in favor of permitting the export of bottled water and other products that contain water—are called "developers;" and (2) the "conservation" side of the debate—those who argue that the Compact should ban the export of all water, including bottled water—are called "preservationists."

The developers argue that bottled water is no different than products such as soft drinks and beer and that selling such products outside of the Great Lakes basin should be permitted.[24] In a free market economy, they posit, bottled water companies should be allowed to sell bottled water to any consumer who wishes to purchase

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groundwater." Compact § 1.2, 122 Stat. at 3740–41.

[22] The Compact defines a diversion as:

> a transfer of Water from the Basin into another watershed, or from the watershed of one of the Great Lakes into that of another by any means of transfer, including but not limited to a pipeline, canal, tunnel, aqueduct, channel, modification of the direction of a water course, a tanker ship, tanker truck or rail tanker but does not apply to Water that is used in the Basin or a Great Lake watershed to manufacture or produce a Product that is then transferred out of the Basin or watershed.

Compact § 1.2, 122 Stat. at 3740–41. Notably, withdrawing water in containers greater than five gallons is a diversion under the Compact, but "[a] 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." Compact § 4.12.10, 122 Stat. at 3757.

[23] Lydersen, *supra* note 12.

[24] *See id.* (discussing developers' arguments that since water goes into beer and soft drinks, there should not be a separate standard for bottled water); *see also* Noah D. Hall, *Toward a New Horizontal Federalism: Interstate Water Management in the Great Lakes Region*, 77 U. COLO. L. REV. 405, 443 (2006) ("Industry sees no difference between bottles filled with pure water and bottles filled with water and a little sugar, corn syrup or artificial flavor . . . .").

it, regardless of the purchaser's location.[25] Selling bottled water, in their view, is fundamentally different from sending water out of the basin in a pipeline because bottled water undergoes a process within the basin that incorporates it into a product.[26] They claim, in addition, that more stringent regulations on the export of bottled water would violate international trade laws such as the North American Free Trade Agreement (NAFTA)[27] and the General Agreement on Tariffs and Trade (GATT).[28] The developers also claim that state laws already prevent any long-term damage to the Great Lakes ecosystem that may occur as a result of withdrawing water to sell in bottles. Finally, because the potential future effects are uncertain, the developers would likely argue that no regulations should be placed on bottled water until there is a demonstrable negative impact on the ecosystem as a whole, if at all.

The preservationists, conversely, argue that there is fundamentally no difference between a ship filled with Great Lakes water bound for Asia, which the Compact prohibits, and a ship filled with bottles of Great Lakes water bound for Asia, which the Compact permits.[29] Water should not be considered a product, according to this view, simply because someone puts it into a bottle and sells it. Under this view, there is no significant difference between water in its pristine state, such as a lake, and water that has been poured into a bottle. According to the preservationists, even though exporting bottled water may have no appreciable impact on the Great Lakes today, the Compact should prevent private corporations from selling Great Lakes water for a profit, in a bottle or otherwise.[30] The

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[25] *See* Lydersen, *supra* note 12.

[26] *See* Hall, *supra* note 24, at 443 ("The bottled water industry views itself as an in-basin consumptive use, creating a product (bottled water) from a natural resource.").

[27] North American Free Trade Agreement, U.S.-Can.-Mex., Dec. 17, 1992, 32 I.L.M. 289 (1993) [hereinafter NAFTA].

[28] General Agreement on Tariffs and Trade, Oct. 30, 1947, 55 U.N.T.S. 194 [hereinafter GATT]. GATT was incorporated into and modified by the General Agreement on Tariffs and Trade 1994, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, Legal Instruments—Results from the Uruguay Round, 33 I.L.M. 1125, 1154 (1994). *See also* Lydersen, *supra* note 12 (discussing the possibility that designating bottled water a product and then regulating its export could be a violation of international trade agreements). For a detailed discussion of the interaction between NAFTA, GATT, and the Compact, see Scott S. Slater, *State Water Resource Administration in the Free Trade Agreement Era: As Strong as Ever*, 53 WAYNE L. REV. 649, 713 (2007) (determining that "under any formulation, a state's prospects of surviving challenges under NAFTA and GATT would become worse, not better, if the state were to regulate beyond the Agreement and the Compact, and ban exports of water in all containers of any size").

[29] *See* Dave Dempsey, *Other Voices: Loophole in Great Lakes Compact Allows Capture of Water*, MLIVE.COM, May 8, 2009, http://www.mlive.com/opinion/ann-arbor/index.ssf/2009/05/other_voices_loophole_in_great.html.

[30] DAVE DEMPSEY, GREAT LAKES FOR SALE: FROM WHITECAPS TO BOTTLECAPS 95–99

preservationists argue that water is a public resource, not a private good, and that there is something morally wrong with companies making large profits by selling a public good.[31] Because the potential future effects are uncertain, the preservationists would likely argue that exporting bottled water from the Great Lakes basin should not be permitted unless more information is gathered that demonstrates conclusively that doing so will not undermine the sustainability of the Great Lakes.

The arguments of the preservationists and the developers rest on conflicting assumptions about whether exporting bottled water from the Great Lakes basin will undermine the Compact's goal of ensuring the long-term sustainability of the resource by leading to its long-term depletion. To resolve this ongoing debate, both sides need more information about the amount of water that is withdrawn, incorporated into products, and exported from the Great Lakes basin in products such as bottled water.

B. Uncertainty Regarding the Cumulative Impact of Future Small-Scale Removals of Water from the Great Lakes Basin

Water is essential, not only to life, but also to economic growth, health, safety, and national security.[32] Ensuring access to water is "one of the most daunting challenges faced by the world today."[33] A United Nations report estimates that by 2025, two-thirds of the world's population will be facing stress on their water resources and 1.8 billion people will be living in regions with "absolute water scarcity."[34] Given society's need for water, and its scarcity in certain regions of the world, many have argued that water, in terms of geopolitical significance, is this century's "oil."[35] If this is the case, then the Great Lakes region is this century's Saudi Arabia.

(2008). *See generally* MAUDE BARLOW, BLUE COVENANT: THE GLOBAL WATER CRISIS AND THE COMING BATTLE FOR THE RIGHT TO WATER (2007).

[31] *See* Lydersen, *supra* note 12 (noting that preservationists have argued that bottling water is "privatizing a public good and harming the environment").

[32] *See* WAYNE ARNOLD ET AL., WORLD ECONOMIC FORUM ANNUAL MEETING 2008: THE POWER OF COLLABORATIVE INNOVATION 17 (2008), *available at* http://www.weforum.org/pdf/summitreports/am2008/am2008.pdf (last visited Mar. 16, 2009).

[33] *Id.* (quoting Ban Ki-moon, U.N. Secretary General).

[34] UN Water, *Coping with Water Scarcity: A Strategic Issue and Priority for System-Wide Action*, at 2, FAO/6788/F (Aug. 2006), *available at* http://www.unwater.org/downloads/waterscarcity.pdf.

[35] *See, e.g.*, Stephen Handelman, *Exporting Fresh Water*, TIME, Aug. 13, 2001, at B14, *available at* http://www.time.com/time/magazine/article/0,9171,1000535,00.html ("Water has been called the oil of the 21st century.").

The Great Lakes, together comprising the largest body of freshwater in the world, contain eighteen percent of the world's fresh surface water and ninety-five percent of North America's fresh surface water.[36] The hydrologic system of the Great Lakes contains nearly 5,440 cubic miles of water,[37] enough water to cover the contiguous United States to a depth of 9.5 feet.[38] It is estimated that, below the surface, groundwater in the Great Lakes region has as much volume as all of Lake Michigan.[39] The Great Lakes groundwater and surface water spans eight states and two provinces: the states of Illinois, Indiana, Michigan, Minnesota, Ohio, New York, Pennsylvania, and Wisconsin, and the provinces of Ontario and Quebec.[40]

The eight states and two Canadian provinces are part of the Great Lakes basin. A basin is "that portion of the earth's surface where runoff terminates or accumulates in a common hydrologic feature, such as a lake or river."[41] If a drop of rain falls into the Great Lakes basin, it will eventually accumulate in the surface or groundwater of the Great Lakes. While it is difficult to determine with precision, "on average less than 1 percent of the waters of the Great Lakes is renewed annually by precipitation, surface water runoff, and inflow from groundwater sources."[42] For this reason, many consider the Great Lakes to be a "nonrenewable resource."[43] The best information available suggests that, if more than one percent of Great Lakes water is taken out of the basin, then the water levels of the basin will decrease over time. The Aral Sea in Central Asia illustrates the potential negative impact of withdrawing more water than is replenished each year. The Aral Sea was once the fourth largest inland body of water in the world, but it dropped to 10% of its original volume in just a few decades because large-scale diversions

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[36] U.S. GEOLOGICAL SURVEY (USGS), DEP'T OF THE INTERIOR, USGS FS-2005-3113, GREAT LAKES BASIN WATER AVAILABILITY AND USE: A STUDY OF THE NATIONAL ASSESSMENT OF WATER AVAILABILITY AND USE PROGRAM 1 (2005), *available at* http://pubs.usgs.gov/fs/2005/3113/pdf/FS2005_3113.pdf; INT'L JOINT COMM'N, 13TH BIENNIAL REPORT ON GREAT LAKES WATER QUALITY 5 (2006), *available at* http://www.ijc.org/php/publications/pdf/ID1601.pdf.

[37] N.G. GRANNEMANN ET AL., USGS, WATER-RESOURCES INVESTIGATIONS REPORT 00-4008, THE IMPORTANCE OF GROUND WATER IN THE GREAT LAKES REGION 1 (2000).

[38] ANNIN, *supra* note 3, at xiii.

[39] *See* GREAT LAKES SCI. ADVISORY BD., PRIORITIES 2005–2007: PRIORITIES AND PROGRESS UNDER THE GREAT LAKES WATER QUALITY AGREEMENT 4 (2008), *available at* http://www.ijc.org/php/publications/pdf/ID1622.pdf.

[40] *See* IJC 2000 REPORT, *supra* note 14, at 4 fig.1.

[41] Jay A. Leitch & Steven Shultz, *Floods and Flooding*, *in* ENCYCLOPEDIA OF WATER SCIENCE 300 (B.A. Stewart & Terry A. Howell eds., 1st ed. 2003).

[42] IJC 2000 REPORT, *supra* note 14, at 6.

[43] *Id.*

for irrigation took out more water than was naturally replaced on an annual basis.[44]

Both human intervention and natural fluctuation affect the hydraulic conditions of the Great Lakes.[45] The Compact addresses three types of human interventions: (1) diversions; (2) consumptive uses; and (3) withdrawals. The Compact defines a diversion as a "transfer of Water from the Basin into another watershed, or from the watershed of one of the Great Lakes into that of another," but it explicitly exempts products from this definition.[46] A consumptive use is defined by the Compact as that "portion of the Water Withdrawn or withheld from the basin that is lost or otherwise not returned to the Basin due to evaporation, incorporation into Products, or other processes."[47] A withdrawal is broadly defined as "the taking of water from surface water or groundwater."[48]

Currently, the total amount of water that leaves the basin due to human intervention is more than the total amount of water that enters it due to human intervention.[49] A Report by the International Joint Commission ("IJC Report"), which the Canadian and United States governments requested in anticipation of developing the Compact,[50] made three key findings: (1) the era of proposals for major water transfers and major diversions of water has likely ended;[51] (2) although "the volume of water leaving the Great Lakes Basin in bottles is not significant . . . . [t]here is nevertheless a need to monitor [this activity] and keep [it] under review";[52] and (3) the impact of future consumptive uses, climate change, and small-scale removals of water are uncertain, but, in their totality, these factors are likely to place "downward pressures on water levels, with reinforcing impacts."[53] The ICJ Report warned that the interaction of insufficient data, inadequate scientific understanding, and potentially adverse cumulative effects of human intervention "suggests a need for great

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[44] ANNIN, *supra* note 3, at 23–24.

[45] *See* IJC 2000 REPORT, *supra* note 14, at 7.

[46] Compact § 1.2, 122 Stat. 3739, 3740.

[47] *Id.*

[48] *Id.*

[49] *See* IJC 2000 REPORT, *supra* note 14, at 7.

[50] *See id.* at 3.

[51] *See id.* at 16. *But see* INT'L JOINT COMM'N, PROTECTION OF THE WATERS OF THE GREAT LAKES: REVIEW OF THE RECOMMENDATIONS IN THE FEBRUARY 2000 REPORT 2 (2004) [hereinafter IJC 2004 REPORT] ("While there are not, at present, any active proposals for diversions outside the Great Lakes Basin, except to communities on the edge of the basin, this situation could change.").

[52] IJC 2000 REPORT, *supra* note 14, at 44.

[53] *Id.* at 22. The report did not give a definition of "small-scale."

caution in dealing with those water use factors that are within the control of Basin managers."[54]

C. Proposals for Large-Scale Diversion of Water Lead to the Compact

The water-rich Great Lakes are a global anomaly. In many regions of the United States and the world, freshwater is unavailable, inaccessible, and scarce.[55] In these regions, in the words of Mark Twain, "whiskey is for drinking and water is for fighting over."[56] Water scarcity, however, has not only been the source of conflicts; it has also been the source of innovation. Proposals for solving the water scarcity problem have included seeding clouds, towing icebergs, desalinizing salt water, and transporting water from one location to another through pipelines.[57]

There have been several proposals for transporting Great Lakes water from the basin to other regions in order to meet those regions' water needs. In the 1970s and 1980s, for example, a coal company developed a plan to construct a coal slurry pipeline from Wyoming to the Great Lakes using water from Lake Superior.[58] In 1982, the Army Corps of Engineers, under a mandate from Congress, examined the possibility of using Great Lakes water to replenish the Ogallala Aquifer.[59] During a drought in New York City in 1985 and 1986, the environment commissioner for New York State indicated that New York would consider diverting water to meet the city's growing needs.[60]

One proposal, in particular, was influential in leading to the Compact. The proposal came from Nova Group in 1998, which devised a plan to help meet the growing demand for water in Asia by shipping water from the Great Lakes to China.[61] While this plan led

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[54] *Id.*

[55] *See* UN Water, *supra* note 34, at 2.

[56] Paul Harrison, *Dirt Pour?*, WASH. TIMES, Nov. 28, 2008, at A24 (noting that the quote has been "famously ascribed to Mark Twain" and that "[t]here's no proof he actually said this, but if he didn't, he should have"). The 260 water basins in the world that transcend national borders have given rise to at least 500 conflicts over the last half century, at least seven of which involved violence. U.N. Dep't of Public Info., From Water Wars to Bridges of Cooperation: Exploring the Peace-Building Potential of a Shared Resource, http://www.un.org/events/tenstories/06/story.asp?storyID=2900# (last visited Oct. 1, 2010).

[57] *See* Anne Minard & Mitch Tobin, *Water Solvable*, ARIZ. DAILY STAR, June 21, 2005, at A1.

[58] *See* ANNIN, *supra* note 3, at 65; *see also* DEMPSEY, *supra* note 30, at 6 (discussing the planned slurry pipeline, which eventually failed for economic reasons).

[59] ANNIN, *supra* note 3, at 66; DEMPSEY, *supra* note 30, at 6.

[60] ANNIN, *supra* note 3, at 78.

[61] DEMPSEY, *supra* note 30, at 19–20.

to public outcry and was a motivation for developing the Compact, the IJC Report determined that proposals for large-scale transfers in the near future are unlikely.[62] Small-scale water withdrawal activities, according to the IJC Report, demand attention because "[t]he impact of localized, small-scale activities may be difficult to quantify on an individual basis but, collectively, [such activities] can significantly alter the level and flow regime and associated ecological conditions."[63] Professor Robert Glennon uses the analogy of putting many straws into a milkshake to describe the cumulative effect of groundwater withdrawals.[64] This analogy is also useful for understanding the impact of withdrawals in the Great Lakes. Because the future impact of small-scale activities and bottling water is uncertain, monitoring these activities is essential. As the IJC Report concluded, "[i]n support of their decision-making, governments should implement long-term monitoring programs capable of detecting threats (including cumulative threats) to ecosystem integrity."[65] Monitoring is necessary in order to better understand the total effect that all of the straws are having on the milkshake. At the very least, the volume of milkshake being sipped through the straws should be measured.

D. Environmental Decision Making in the Midst of Uncertainty

One of the difficulties of managing natural resources like the Great Lakes is the uncertain impact of human activities. Whereas too little regulation fails to protect the resource, too much regulation unnecessarily stifles the use of the resource to meet human needs. How one determines the optimal degree of regulation depends, in part, on the decision-making process one uses to make the determination.

1. Solutions to the Uncertain Tragedy of the Great Lakes Semi-Commons

Common resources, such as the Great Lakes, present a particular dilemma that Garret Hardin described as "the tragedy of the commons."[66] In order to illustrate the tragedy of the commons, Hardin

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[62] *See* IJC 2000 REPORT, *supra* note 14, at 16.

[63] *Id.* at 20.

[64] *See* Robert Glennon, Essay, *Tales of French Fries and Bottled Water: The Environmental Consequences of Groundwater Pumping*, 37 ENVTL. L. 3, 12 (2007).

[65] IJC 2000 REPORT, *supra* note 14, at 49–50.

[66] Garret Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243, 1244 (1968).

used the example of a common area for herdsman.[67] A rational herdsman, when deciding whether to add a new animal to the herd, will consider the benefit to himself of adding a new animal against the detriment to the common area, which the potential of overgrazing presents.[68] Because the benefit of adding a new animal is personal to the herdsman, whereas its detriment is shared by the group, the rational herdsman will always have an incentive to add the new animal.[69] The "tragedy of the commons" is that the cumulative effect of all such individual incentives ultimately "brings ruin to all."[70]

Subsequent scholars have noted relevant differences between the commons Hardin describes and other natural resources.[71] Water resources in particular are more accurately described as a "semicommons" because they involve situations "where private and common property overlap and potentially interact."[72] Professor Lee Anne Fennell suggests that the semi-commons model is a useful "lens" for understanding all commons tragedies.[73] The driving force behind all commons tragedies, Fennell maintains, is "the presence of two (or more) activities that are being pursued at different scales and under different property arrangements."[74] The tragedy occurs at the moment when the "mix of ownership types occurs under circumstances that permit private ownership to be used as a platform for offloading costs onto the commons, and that allow access to the commons to be used for the benefit of private property."[75]

Bottled water companies and other producers, no less than private actors, benefit from withdrawing water from the Great Lakes basin and offload some of the costs onto the commons through, at the very least, a reduction in water volume. This is a classic example of a misalignment of interests that incentivizes use of the resource. The relevant question, then, is how to best solve this tragedy.

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[67] *See id.*

[68] *Id.*

[69] *Id.*

[70] *Id.*

[71] *See, e.g.*, Douglas A. Kysar, *Law, Environment, and Vision*, 97 NW. U. L. REV. 675, 680–83 (2003) (discussing how Kenneth Boulding's notions of "cowboy" and "spaceman" economies and Nicholas Georgescu-Roegen's application of theoretical physics to the use of resources within economic processes challenge Hardin's notion that commons dilemmas can only be solved through legislative controls).

[72] Henry E. Smith, *Governing Water: The Semicommons of Fluid Property Rights*, 50 ARIZ. L. REV. 445, 449 (2008).

[73] Lee Anne Fennell, *Commons, Anticommons, Semicommons* 17 (John M. Olin Law & Econ. Working Paper No. 457, 2009 & Chicago Law Sch. Pub. Law & Legal Theory Working Paper No. 261, 2009), *available at* http://www.law.uchicago.edu/files/files/457-261.pdf [hereinafter Fennell, *Semicommons*].

[74] *Id.* at 5.

[75] *Id.*

One solution is to realign the interests. Such a realignment could be accomplished either by government coercion or by manipulating the imposition of costs in such a way that the choices of individual producers and consumers "more closely reflect[] the full internalization of costs and benefits."[76] The realignment could either favor making the common area more private or making the private right more common. The developers, presumably, would favor realignment by transforming the common area into a private right. The preservationists, alternatively, would more likely prefer increased government regulation that curtails the private rights available to bottled water companies.

These opposing solutions share a common problem: each requires a determination of the optimal degree of regulation. While too little regulation fails to prevent the tragedy, too much may produce an "anticommons"—"underutilization of a resource due to overexclusion of potential users, thereby decreasing aggregate social utility."[77] For this reason, more information about the potential costs and benefits of permitting or restricting the export of bottled water from the Great Lakes basin is essential to tailoring an efficient solution. Reducing uncertainty is also essential to ending the political deadlock that currently hampers any attempt to solve problems relating to the sustainability of natural resources.[78] This is true, in part, because scientific uncertainty regarding a commons dilemma causes people to both underestimate the extent of the problem and overestimate how much they are doing to solve it.[79]

2. *Information as a Resource for Making Decisions About Great Lakes Water*

Decisions about the management of natural resources often involve uncertainties.[80] The Great Lakes region is no exception.

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[76] *Id.* at 8.

[77] Sean Callagy, *The Water Moratorium: Takings, Markets, and Public Choice Implications of Water Districts*, 35 ECOLOGY L.Q. 223, 227 (2008); *see also* Lee Anne Fennell, *Common Interest Tragedies*, 98 NW. U. L. REV. 907, 983–90 (2004) (discussing several examples of anticommons problems and potential solutions); Fennell, *Semicommons*, *supra* note 73, at 9–10 (discussing the inefficiencies that are created by anticommons problems).

[78] *See* Barton H. Thompson, Jr., Essay, *Tragically Difficult: The Obstacles to Governing the Commons*, 30 ENVTL. L. 241, 259 (2000) (discussing the difficulties in determining how to most fairly allocate the burden of solving problems of resource overuse because "there are multiple ways to allocate the burden of reducing resource use and no generally accepted societal norms for how to choose between the various allocations").

[79] *See id.* (noting that ambiguity causes some to claim that a resource pool is large or act as if it is, which then causes others to act in the same way in an effort to resolve the ambiguity).

[80] *See* JACQUELINE PEEL, THE PRECAUTIONARY PRINCIPLE IN PRACTICE: ENVIRONMENTAL DECISION-MAKING AND SCIENTIFIC UNCERTAINTY 41 (2005) (discussing

Uncertainties include the effects of consumptive uses, climate change, and small-scale removals on the Great Lakes basin. Much of these uncertainties stem from the simple fact that environmental systems are complex, but they are exacerbated by the lack of studies that have been done to understand the hydrology of the Great Lakes system as a whole.[81]

The debate between the developers and the preservationists rests, in large part, on their respective predictions about what the future will hold for the Great Lakes basin. The preservationists claim that the export of bottled water will negatively affect the Great Lakes basin by depleting the resource as a whole.[82] The developers argue that the export of bottled water promotes economic development and will have no long-term negative impact on the hydrologic system.[83]

In *Eco-Pragmatism*, Professor Daniel Farber discusses the conflicting approaches to environmental decision making employed by those he terms the "bean counters" and those he terms the "tree huggers."[84] The bean counters rely on a mostly quantitative cost-benefit analysis to make environmental decisions, while the tree huggers often reject the cost-benefit analysis in favor of other, more qualitative means of making value judgments.[85]

Both the quantitative and qualitative approaches, taken alone, have drawbacks. The preservationists, or "tree huggers," tend to "unduly elevate[] so-called public values over mere private preferences, putting the environment in one category and economic interests in the other."[86] This approach may lead to unintended consequences, such as failure to recognize the economic value of water.[87] It may also lead to a failure to appreciate the prohibitive costs and negligible benefits of certain environmental policies.[88] In addition, some

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the "high level of natural variability observed in many health and environmental systems").

[81] *See* IJC 2000 REPORT, *supra* note 14, at 20 ("The Commission is aware of only one assessment of the overall effects of water diversions.").

[82] *See id.*

[83] *See* Lydersen, *supra* note 12 (discussing the public debate between bottlers and environmentalists sparked by Nestle Waters' renewal of well and pipeline permits at its Michigan and Ontario bottling facilities).

[84] *See* DANIEL A. FARBER, ECO-PRAGMATISM: MAKING SENSIBLE ENVIRONMENTAL DECISIONS IN AN UNCERTAIN WORLD 39 (1999).

[85] *See id.*

[86] *Id.*

[87] *See* BJØRN LOMBORG, THE SKEPTICAL ENVIRONMENTALIST: MEASURING THE REAL STATE OF THE WORLD 155 (Hugh Matthews trans., Cambridge Univ. Press 2001) (1998) Lomborg observes that "[t]he problem of water waste occurs because water in many places is not well priced." *Id.* This is because water prices are generally not market-driven, but instead are based on flat rates, regardless of consumption. *Id.*

[88] *See* RESEARCH AND POLICY COMM. OF THE COMM. FOR ECON. DEV., WHAT PRICE

preservationists assume that the mere fact that environmental decisions are determined collectively through the democratic political process instead of being left to market forces guarantees that such decisions will be made in the public interest.[89] In reality, however, public officials will very likely make water allocation decisions with the object of "maximiz[ing] the budgets of their agencies," or in response "to political pressure from important economic constituencies."[90]

The developers, or "bean counters," on the other hand, tend to "misconceive[] the appropriate role for cost-benefit analysis by acting as if economic efficiency [is] a sort of 'super value' that measures all other values."[91] In reality, the cost-benefit analysis has difficulty "internalizing environmental values" and externalities and, as a result, may fail to prevent significant environmental degradation.[92] In addition, market prices are often artificially influenced by government policies and, therefore, do not present a complete picture of whether particular environmental decisions make individuals "collectively better off."[93]

Professor Farber suggests that a better approach to environmental decision making involves a synthesis of the "bean counter" and "tree hugger" approaches that recognizes both perspectives as different ways of gathering information to resolve disputes over resource allocation.[94] For example, imagine that political leaders were deciding whether to sell all of the water in Lake Superior to California.[95] The "bean counters," or developers, might employ the cost-benefit analysis to determine how much money those living around Lake Superior should receive in order to determine at what price the transaction becomes an efficient use of water. The "tree huggers," or preservationists, on the other hand, might put together a forum for a discussion about whether or not selling all of the water is an appropriate decision.

CLEAN AIR? A MARKET APPROACH TO ENERGY AND ENVIRONMENTAL POLICY 39 (1993) ("It is not sound policy to choose environmental standards without giving consideration to both the costs and the benefits.").

[89] ROBERT GLENNON, WATER FOLLIES: GROUNDWATER PUMPING AND THE FATE OF AMERICA'S FRESH WATERS 213–14 (2002).

[90] *Id.*

[91] FARBER, *supra* note 84, at 39.

[92] GLENNON, *supra* note 89, at 214.

[93] FARBER, *supra* note 84, at 40.

[94] *See id.* at 41.

[95] The cost-benefit analysis, no doubt, can bring in a great deal of information in making this decision. *See id.* at 36–49.

Making important decisions about the environment requires gathering information both from the market ("willingness to pay") and the democratic process ("willingness to vote").[96] Both the "willingness to pay" and the "willingness to vote" may change with new information. For example, if it undisputed that sending bottled water out of the Great Lakes basin, along with all other future uses, would never exceed the one percent renewal rate and would, therefore, never have a negative impact on the total volume of water in the Great Lakes, the decisions would likely merge. At that point, the preservationists and developers would likely agree that sending bottled water out of the Great Lakes basin was not only justifiable, but preferred. In this way, information can be a valuable resource that drives the decision-making engine of both camps. Put simply, more information, not less, is preferred.[97] Of course, information gathering also comes at a cost.

E. Uncertainty and International Law

The developers argue that the bottled water exception was necessary because international law would prevent more stringent regulations.[98] This argument rests on the fact that the North American Free Trade Agreement (NAFTA) and General Agreement on Tariffs and Trade (GATT) prevent blanket bans on the export of products out of the United States.[99] Whether NAFTA and GATT prohibit bans on the export of water in containers turns on whether the containerized water is considered a "good."[100] Bottled water, for example, is considered a "good" under NAFTA and GATT.[101] Because of that, a ban on the export of bottled water would likely violate GATT and NAFTA unless it falls under one of the relevant exceptions.[102] Other prohibitions under the Compact, however, such as prohibiting the diversion of water through pipelines, are exempt from NAFTA and GATT because "such regulations simply govern withdrawal and conveyance of water, which are fundamental features of water rights."[103]

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[96] *See id.* at 42.

[97] Of course, the preservationists and developers would likely also employ different approaches in order to determine how much information to gather.

[98] Lydersen, *supra* note 12.

[99] *See* Slater, *supra* note 28, at 676–77; *see also* DEMPSEY, *supra* note 30, at 68–69.

[100] *See* Slater, *supra* note 28, at 710.

[101] *See id.* at 710–11.

[102] *See id.* at 680; *see also* Lydersen, *supra* note 12.

[103] *See* Slater, *supra* note 28, at 710.

The preservationists might argue that more stringent regulations should be upheld under one of the relevant exceptions provided by NAFTA and GATT. There are at least two exceptions in Article XX of GATT that are relevant to the potential treatment of exporting products from the Great Lakes basin. First, the "health exception"[104] permits restrictions on product exports that are "necessary to protect human, animal or plant life or health."[105] Second, the "conservation exception"[106] permits restrictions on product exports that "relat[e] to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption."[107] NAFTA incorporates these exceptions from GATT, but also requires that, when an export restriction is added, it must not: (1) reduce the proportion of goods, compared to the proportion exported in the most recent 36-month period, exported to another Party to GATT; (2) result in a higher price for export of goods than the price charged domestically; or (3) require the disruption of normal channels of supply or normal proportions among specific goods or categories of goods.[108] In addition to these requirements, any restrictions on the export of products must be "administered fairly with respect to foreign investors so [as] to avoid liability under Chapter Eleven [of NAFTA], as well as U.S. due process requirements, the dormant Commerce Clause, and regulatory takings challenges."[109]

Obtaining more information about the amount of water that is removed from the Great Lakes basin in products would accomplish two things. First, as previously discussed, it would help policymakers determine whether future regulations are necessary. Second, if policymakers determine more regulation is necessary, then more accurate information will be essential to tailoring a solution that will survive challenges under NAFTA and GATT.

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[104] IJC 2000 REPORT, *supra* note 14, at 32.

[105] GATT, *supra* note 28, art. XX(b); *see also* Slater, *supra* note 28, at 685–86 (discussing the GATT "health exception").

[106] IJC 2000 REPORT, *supra* note 14, at 32.

[107] GATT, *supra* note 28, art. XX(g); *see also* Slater, *supra* note 28, at 685–86 (discussing the GATT "conservation exception")

[108] *See* NAFTA, *supra* note 27, art. 315(1).

[109] Slater, *supra* note 28, at 706. In his article, Professor Slater describes, in greater detail, that to be "administered fairly" the laws should:

> (a) be adopted and applied in a nondiscriminatory manner to avoid violations of NAFTA's Article 1102 (national treatment); (b) be administered in a non-arbitrary manner with ample due process to avoid violations of NAFTA's Article 1105 (minimal standard of treatment); and (c) avoid direct expropriations to evade liability under Article 1110 (expropriation compensation).

Id.

II. THE COMPACT

A. The Compact's Bottled Water Loophole

To fully understand the Compact's treatment of bottled water and other products that contain water, it is useful to examine the Compact's treatment of three relevant stages. The first stage, the withdrawal stage, occurs when water is taken from the Great Lakes in its pristine and natural state. The second stage, the incorporation stage, occurs when water is incorporated into a product. The third stage, the export stage, occurs when the product is sent out of the Great Lakes basin. It is the Compact's treatment of each stage, interacting together, that results in the so-called bottled water exception.

1. The Compact's Treatment of Withdrawing Water, Incorporating It into Products, and Exporting It from the Basin

Whether or not a bottled water company, or some other producer, is permitted to withdraw water is primarily left up to the individual Great Lakes states (Parties).[110] The Compact provides a model "Decision-Making Standard,"[111] which sets out various criteria that must be taken into account when approving proposals for new withdrawals. States are not required to use the model standard, but they are required to do two things under the Compact: (1) develop their own standard for evaluating proposals to withdraw water that is at least as strict as the model standard;[112] and (2) determine, using criteria set out in the Compact, which withdrawals and consumptive uses will be subject to the standard by choosing a "threshold level[]."[113] Proposals for withdrawals that are below the threshold level are not subject to the Decision-Making Standard.[114] If any state

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[110] The Parties include Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin. *See* Compact, Pub. L. No. 110-342, §§ 1, 1.2, 122 Stat. 3739, 3739, 3741 (2008).

[111] *Id.* § 4.11, 122 Stat. at 3755.

[112] *See id.* § 4.10.1, 122 Stat. at 3755.

[113] *Id.* If a Party does not set a threshold level within ten years, the Compact will apply a threshold level of 100,000 gallons per day. *Id.* § 4.10.2, 122 Stat. at 3755.

[114] The model Decision-Making Standard in the Compact requires that withdrawals and consumptive uses be permitted only when: (1) all water withdrawn, less the consumptive use, is returned to the Basin; (2) the withdrawal or consumptive use will not have "significant individual or cumulative adverse impacts to the quantity or quality" of the water in the watershed; (3) the withdrawal or consumptive use is implemented with "Environmentally Sound and Economically Feasible Water Conservation Measures"; (4) the withdrawal complies with all other applicable laws; and (5) the proposed use is reasonable based on the specific criteria for evaluating reasonableness set out in the Compact. *Id.* § 4.11, 122 Stat. at 3755–56.

does not set a threshold level within ten years of the effective date of the Compact, then the Compact will apply a threshold level of 100,000 gallons per day.

The more interesting question, relevant to the Compact's treatment of bottled water, is whether a proposal to put water into bottles and sell it outside of the basin should be treated as a withdrawal, subject to the standards discussed above, or a diversion, subject to a general ban discussed in greater detail below. A related question is whether a proposal to fill a tanker ship with Great Lakes' water and sell it outside of the basin is a withdrawal or a diversion. The Compact's answer to these questions turns on whether the proposal is to remove water in a container of more or less than 5.7 gallons. A proposal to withdraw water and remove it from the basin in containers of greater than 5.7 gallons is treated as "a Proposal for a Diversion."[115] With a few limited exceptions, it would not be permitted.[116] However, it is up to the individual Parties to decide how to treat proposals for withdrawing water and removing it from the basin in containers of 5.7 gallons or less.[117]

The distinction between water in containers of more or less than 5.7 gallons has been referred to as the "bottled water exception." Some commentators posit that the number itself, 5.7 gallons, corresponds with Ontario's decision, in response to Nova, to ban the export of water in containers of more than 20 liters, or just over five gallons.[118] The IJC Report also referred to 20 liters, noting that, "at this time, removal from the basin of water that is used for ballast or that is in containers of 20 liters or less should be considered, prima facie, not to endanger the integrity of the ecosystem of the Great Lakes."[119] As Professor Noah Hall described it, "[t]he question of whether bottled water constitutes a diversion is so loaded with political controversy that the governors decided not to conclusively address it in the proposed compact."[120] Ultimately, the question is left up to the states.

Given that products are generally exempt from the ban on diversions, it is relevant to determine at what point water, after it is withdrawn, changes from being water in its natural state to being water incorporated into a product. This is especially important to

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[115] *Id.* § 4.12.10, 122 Stat. at 3757.

[116] *Id.* § 4.8, 122 Stat. at 3752 ("All New or Increased Diversions are prohibited, except as provided for in this Article."). The exceptions to the prohibition of diversions are listed in the Compact at § 4.9, 122 Stat. at 3752–53.

[117] *See id.* at 3752–53.

[118] *See* ANNIN, *supra* note 3, at 233.

[119] IJC 2000 REPORT, *supra* note 14, at 47.

[120] Hall, *supra* note 24, at 443.

those who would like to prevent the export of bottled water from the basin. Such people claim that bottled water should not be considered a product and argue instead that there is no real distinction between a ship filled with bottles and a tanker ship filled with water, like the ship that was the subject of Nova's proposal. The Compact, however, defines "product" broadly as "something produced in the basin by human or mechanical effort or through agricultural processes and used in manufacturing, commercial or other processes or intended for intermediate or end use consumers."[121] This broad definition leaves much room for debate as to the distinction between water in its natural state and water incorporated into a product.

Once the water is withdrawn and incorporated into a product, the next relevant question for the drafters was whether to draft the Compact in such a way as to regulate the export of those products. The answer to that question in the version of the Compact that was ultimately enacted into law differs substantially from the answer found in the May 2005 draft. The May 2005 draft defined a diversion as "a transfer of water from the Basin into another watershed, or from the watershed of one of the Great Lakes into another."[122] Under the final version of the Compact, however, products are exempted from the definition of diversion, and water containers that are deemed "products" may therefore be exported out of the basin.[123]

2. *Driving a Tanker Ship Through the Bottled Water Loophole*

The three Compact provisions, interacting together, have led some to argue that the Compact actually has the unintended consequence of making the Great Lakes more vulnerable than they would be without the Compact. As Attorney James Olsen argued, "[i]t is hard to conceive of a broader definition."[124] The definition of "product," is

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[121] Compact § 1.2, 122 Stat. at 3741. The definition continues:

> (i) Water used as part of the packaging of a Product shall be considered to be part of the Product. (ii) Other than Water used as part of the packaging of a Product, Water that is used primarily to transport materials in or out of the Basin is not a Product or part of a Product. (iii) Except as provided in (i) above, Water which is transferred as part of a public or private supply is not a Product or part of a Product. (iv) Water in its natural state such as in lakes, rivers, reservoirs, aquifers, or water basins is not a Product.

Id.

[122] DEMPSEY, *supra* note 30, at 43.

[123] *See* Compact § 1.2, 122 Stat. at 3740 (stating that the definition of diversion "does not apply to Water that is used in the Basin or a Great Lake watershed to manufacture or produce a Product that is then transferred out of the Basin or watershed").

[124] James M. Olson, *Navigating the Great Lakes Compact: Water, Public Trust, and International Trade Agreements*, 2006 MICH. ST. L. REV. 1103, 1127–28.

so broad that "any water export is arguably a 'product' and not subject to the ban on diversions."[125] Imagine, for example, that Nova puts a large bag in the hull of the ship, fills it with water, and sells it to Asia. Arguably, the bag full of water has been "produced in the Basin by human or mechanical effort" and is "intended for intermediate or end use consumers."[126] In other words, it is a product under the Compact and exempt from the ban on diversions. Under this interpretation, the Compact seems to open the door for an argument that large-scale water transfers are exempt from the ban on diversions so long as a profit is being made.

B. The Compact's "Information Loophole"

Determining whether or not more regulation of the bottled water industry and other producers is appropriate depends in large part on having an accurate understanding of how much water is withdrawn and exported from the Great Lakes. Solutions to the tragedy of the commons, decisions made employing the cost-benefit analysis for regulating the bottled water industry, and value judgments made by political groups all hinge on accurate information about the amount of water withdrawn, and the impact those withdrawals have on the hydrologic system.

Although debate over the Compact has focused on the so-called bottled-water loophole, the Compact also has an "information loophole," which results from the exemption of bottled water and other products from the ban on diversions. Specifically, if products were not exempted, but rather were treated as diversions, then the states would be required to report all of the water that is shipped out of the basin.[127] However, because products are exempted from the definition of diversion, they are treated merely as withdrawals.[128] The Compact requires the reporting of withdrawals only when they are "in an amount of 100,000 gallons per day or greater average in any 30-day period."[129] The result is that withdrawals of fewer than 100,000 gallons per day go unreported unless individual states adopt more stringent standards, even if the water that is withdrawn is ultimately shipped out of the basin. The cumulative effect of many users withdrawing 100,000 gallons per day—approximately

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[125] *Id.* at 1128.

[126] Compact § 1.2, 122 Stat. at 3741.

[127] *See id.* § 4.1.3, 122 Stat. at 3747 (requiring registration of all diversions, regardless of amount).

[128] *See id.* § 1.2, 122 Stat. at 3742 ("Withdrawal means the taking of water from surface water or groundwater.").

[129] *Id.* § 4.1.3, 122 Stat. at 3747.

fifty-five Olympic-size swimming pools each year—is unlikely by itself to deplete the Great Lakes over the long-term.[130] However, the cumulative effect of leaving such withdrawals unreported could result in a gaping hole in the necessary information about the system as a whole. The only way for anyone to know for certain, of course, is to require reporting of those withdrawals.

Currently, only two states—Pennsylvania and Minnesota—require reporting of withdrawals that are less than 100,000 gallons per day, while the other states require reporting only of withdrawals that exceed 100,000 gallons per day.[131] Pennsylvania requires reporting of all withdrawals that exceed 10,000 gallons per day.[132] Minnesota requires that users install flow meters to measure and report water

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[130] An Olympic-size swimming pool holds over 660,000 gallons of water. *See* Memorandum from Anthony Andrews et al., Cong. Research Serv., to Eric J. Massa, Cong. Research Serv., Natural Gas Drilling in the Marcellus Shale 16 (Sept. 9, 2009), *available at* http://www.wvsoro.org/resources/marcellus/CRS_Marcellus_Shale_09_09_09.pdf. The hydrologic system of the Great Lakes contains nearly 5,440 cubic miles, close to 6 quadrillion gallons, of water. GRANNEMANN ET AL., *supra* note 37, at 1.

[131] *See* Nat'l Conference of State Legislatures, State Water Withdrawal Regulations, http://www.ncsl.org/?tabid=18031 (last visited Aug. 31, 2010) (listing the latest state requirements for water withdrawals); *see also* RUSS HARDING, MACKINAC CTR. FOR PUB. POLICY, GROUNDWATER REGULATION 12–17 (2005) (discussing the various permit, registration, reporting, and aquifer protection regulations in the Great Lakes states). The following survey summarizes the groundwater withdrawal reporting requirements in effect as of January 3, 2010. Illinois requires that water users report all wells that exceed a capacity of 100,000 gallons per day. 525 ILL. COMP. STAT. ANN. 45/5.1(a) (West 2004). Indiana requires reporting for significant water withdrawal facilities, defined as a facility capable of withdrawing more than 100,000 gallons per day. IND. CODE ANN. § 14-25-7-15(a) (West 1998 & Supp. 2009). Michigan requires reporting of large quantity withdrawals, which are defined as cumulative withdrawals that average more than 100,000 gallons per day over any thirty-day period. MICH. COMP. LAWS ANN. §§ 324.32701(1)(aa), 324.32705(1) (West 2009). Minnesota requires that water users install flow meters to measure and report the "quantity of water appropriated," which includes all withdrawals, removals, or transfers, "regardless of how the water is used." MINN. STAT. ANN. §§ 103G.005(4), 103G.281(2) (West 2009). New York requires that "[a]ny person who withdraws or is operating any system or method of withdrawal that has the capacity to withdraw more than 100,000 gallons of groundwater or surface water per day at a single tract of land, water source or place of business shall file a report with the department." N.Y. ENVTL. CONSERV. LAW § 15-3301(1) (McKinney Supp. 2010). Ohio requires registration and reporting of water withdrawals that exceed 100,000 gallons per day. OHIO REV. CODE ANN. § 1521.16(A) (West 1996). Pennsylvania requires reporting of all withdrawals that exceed 10,000 gallons per day. 27 PA. CONS. STAT. ANN. § 3118(a) (West 2009). Wisconsin requires reporting of any surface water withdrawals that exceed 2,000,000 gallons per day and also requires an annual pumping report from high-capacity wells that are capable of withdrawing groundwater at a rate of 100,000 gallons per day or more. WIS. STAT. § 30.18(2)(b) (2007); WIS. ADMIN. CODE [NR] § 820.13(2) (2007).

[132] *See* 27 PA. CONS. STAT. ANN. § 3118(a) ("[E]ach public water supply agency and each hydropower facility, irrespective of the amount of withdrawal, and each person whose total withdrawal or withdrawal use from one or more points of withdrawal within a watershed operated as a system either concurrently or sequentially exceeds an average rate of 10,000 gallons a day in a 30-day period shall register with the department the source, location and amount of withdrawal or use or both.").

withdrawals, regardless of whether they are incorporated into products or not.[133]

Even most withdrawals that are reported, however, fail to paint an adequate picture of water use. Much of the data is based on "voluntary reporting, estimates, and models."[134] A 2004 report by the IJC, following up on the initial 2000 IJC Report, concluded that a "majority of water withdrawals and uses in the Great Lakes basin are not metered and that . . . metering would dramatically enhance the ability to conserve and better manage water use."[135] Similarly, the Great Lakes Commission concluded in 2003 that accurate withdrawal data is "lacking for all water use categories for all jurisdictions."[136] The reason, according to the Commission, was that "reporting consistency varies widely and withdrawal data is mostly estimated."[137] A "first step" toward remedying the problem, according to the report, would be to require "actual measurements of withdrawals and returns where feasible and [to] develop[] a quality control system with audits of facility measurement."[138]

To fully understand the impact of incorporating Great Lakes water into products, it is also useful to have an accurate picture of the amount of water that is "lost" in the production process. The amount of water lost is described as a "consumptive use," which is defined in the Compact as the water that is "lost or otherwise not returned to the

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[133] Minnesota requires that water users install flow meters to measure and report the "quantity of water appropriated," which includes all withdrawals, removals, or transfers, "regardless of how the water is used." MINN. STAT. §§ 103G.005(4), 103G.281(2). Minnesota's law also requires that "[a]n installation for appropriating or using water must be equipped with a flow meter to measure the quantity of water appropriated within the degree of accuracy required by rule." *Id.* § 103G.281(2); *see also id.* § 103G.005(4) (defining "appropriating" to mean "withdrawal, removal, or transfer of water from its source regardless of how the water is used").

[134] STATE OF THE GREAT LAKES 2009, *supra* note 17, at 290.

[135] IJC 2004 REPORT, *supra* note 51, at 12. Information gathering about water uses in the Great Lakes basin has been sporadic. Chicago, Illinois, for example, did not require meters even on newly constructed residences prior to 1982. *See* ANNIN, *supra* note 3, at 104. Not until 2003 did Chicago Mayor Richard M. Daley announce that water meters would be required on all residences, newly constructed or not. *See id.*

[136] PEBBLES, *supra* note 17, at 15. A recent report for the Illinois-based East-Central Regional Water Supply Planning Committee, for example, found that

> [w]ater withdrawals should be accurately reported as withdrawals, not total water produced or used – It is evident in the data that water users are not all reporting the same way. Some water users report how much water was sold to customers. Some report how much water was produced. Some report how much water was used in the cooling process. Some report how much water was withdrawn from the source. These differences provide an inaccurate accounting system of water withdrawals.

BEN DZIEGIELEWSKI, WITTMAN HYDRO PLANNING ASSOCS., INC., WATER DEMAND SCENARIOS FOR THE EAST-CENTRAL ILLINOIS PLANNING REGION: 2005–2050, at 239 (2008), *available at* http://www.isws.illinois.edu/iswsdocs/wsp/ECIL_DemandRPT2008.pdf.

[137] PEBBLES, *supra* note 17, at 15.

[138] *Id.*

Basin due to evaporation, incorporation into Products, or other processes."[139] Currently, much of the consumptive use data in the Great Lakes is "inferred" by "multiplying withdrawals against various coefficients, depending on use type."[140] The data is often inaccurate, because, as a 2009 report on the Great Lakes found:

> Consumptive use is currently inferred by multiplying withdrawals against various coefficients, depending on use type. For instance, it is assumed that thermoelectric users consume as little as 1% of withdrawals, compared to a loss rate of 70–90% for irrigation . . . . There are inconsistencies in the coefficients used by the various states and provinces. Estimating techniques were even more rudimentary in the past, making it problematic to discuss historical consumptive use trends. Due to these data quality concerns, it may not yet be appropriate to consider consumptive use as a water use indicator.[141]

Determining the amount of water that is incorporated into products such as bottled water, therefore, is difficult both because the withdrawal rates are often inaccurate and because the coefficients are inconsistent from state to state. In addition, data does not reflect the fact that some products are sent out of the basin and others remain in it.

Even when withdrawal information is measured and reported, however, the information is not always available to the general public. Accurate and reliable information about water withdrawals is essential to ensuring that the public is appropriately informed in order to make decisions about water uses, such as bottled water.[142] The Compact itself states that one of its purposes is to "facilitate the exchange of data, strengthen the scientific information base upon

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[139] Compact, Pub. L. No. 110-342, §§ 1, 1.2, 122 Stat. 3739, 3741 (2008).

[140] STATE OF THE GREAT LAKES 2009, *supra* note 17, at 287–88

[141] *Id.* The report also notes that "[p]ermit or registration data, moreover, has limited utility in locating users that are not required to register or obtain permits, such as the rural sector, or facilities with a withdrawal capacity below the statutory threshold (100,000 gallons per day in most jurisdictions)." *Id.* at 290.

[142] *See* DZIEGIELEWSKI, *supra* note 136, at 239 (recommending that all water withdrawals should be made public because "[a]s a public resource, the public should be able to see how water in the region is being used"); *see also* LEROY P. KETTREN ET AL., INVESTIGATING THE GROUNDWATER QUANTITY EFFECTS ON ECOSYSTEMS AND HUMAN ACTIVITIES FOR INFORMED GROUNDWATER POLICY 5 (2004), *available at* http://www.ucowr.siu.edu/proceedings/2004%20Proceedings/2004%20UCOWR%20Conference%20Proceedings/Tuesday/PM2%20Technical%20Sessions/Session%2016/Kettren.pdf (recommending that "[t]echnical hydrologic information should be reviewed for understanding by non-professionals and should be made available in a format that is easily accessible by the general public").

which decisions are made and engage in consultation on the potential effects of proposed Withdrawals and losses on the Waters and Water Dependent Natural Resources of the Basin."[143] To fulfill this purpose, the Compact mandates the creation of a water use database that is "publicly available."[144] However, the Compact only requires aggregate information to be publicly available and permits individual states to withhold information that they determine to be confidential.[145] In Illinois, for example, most water use data for private users is confidential.[146] A recent report prepared for a state water planning committee recommended that:

> [a]ll water withdrawals should be made public – Under the current system, commercial & industrial and power generation withdrawals are not available to the public due to confidentiality agreements with the [Illinois State Water Survey] (although some data is available through other public records, such as the [Energy Information Administration]).

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[143] Compact § 1.3(2)(e), 122 Stat. at 3743.

[144] *See id.* § 4.1(5), 122 Stat. at 3748.

[145] *See id.* §§ 4.1(5), 8.3, 122 Stat. at 3748, 3762–63. The Compact states that "[e]ach Party shall annually report the information gathered pursuant to this Section to a Great Lakes–St. Lawrence River Water use data base repository and aggregated information shall be made publicly available, consistent with the confidentiality requirements in Section 8.3." *Id.* § 4.1(5), 122 Stat. at 3748. Section 8.3 states that:

> 1. Nothing in this Compact requires a Party to breach confidentiality obligations or requirements prohibiting disclosure, or to compromise security of commercially sensitive or proprietary information.
>
> 2. A Party may take measures, including but not limited to deletion and redaction, deemed necessary to protect any confidential, proprietary or commercially sensitive information when distributing information to other Parties. The Party shall summarize or paraphrase any such information in a manner sufficient for the Council to exercise its authorities contained in this Compact.

Id. § 8.3(a)–(b), 122 Stat. at 3763; *see also* Christine A. Klein, *The Law of the Lakes: From Protectionism to Sustainability*, 2006 MICH. ST. L. REV. 1259, 1275 (noting that, under the Compact, "states may report and share data on an aggregated basis by type of use, without identifying specific users" and that "data disclosure is further impeded by confidentiality requirements").

[146] The Illinois Water Inventory Program is responsible for collecting information about the mandatory reporting. The amount of water used by commercial and industrial facilities is confidential. *See* Illinois State Water Survey, Illinois Water Inventory Program, http://www.isws.illinois.edu/gws/iwip/ (last visited Aug. 31, 2010) ("*Commercial-Industrial information is kept confidential:* While the amount of water withdrawn by public wells and intakes is public information, the amount of water used by commercial and industrial facilities is not. Commercial-industrial pumpage, whether from wells or surface water intakes, is kept confidential unless the facility grants a specific release of the data. Commercial-industrial data is otherwise published only in combination with township or regional totals.").

> As a public resource, the public should be able to see how water in the region is being used.[147]

This withholding of confidential information, coupled with the reporting of information in the aggregate rather than by individual users, reduces the value to the general public of information regarding the quantity of water being taken and the ways in which that water is being used.

The Compact's focus on registration and reporting is well placed. However, given the threat of many small straws drinking simultaneously, it is ill-advised to rely on unmetered self-reporting that permits some withdrawals to go unreported. This is especially true because at least some bottled water companies and manufacturers withdraw water at rates of fewer than 100,000 gallons per day.[148]

III. A PROPOSED SOLUTION

The tension between the preservationists and developers is generally demonstrated in the differing approaches both to the tragedy of the commons and to the proper way to make decisions in the face of uncertainty. This tension is most readily apparent in the debate over the Compact's treatment of bottled water and other products that leave the Great Lakes basin. Policymakers, when deciding how to treat bottled water and other products in the future, can look to both market information and political information as decision-making guides.

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[147] DZIEGIELEWSKI, *supra* note 136, at 239.

[148] One of the difficulties of determining how many users withdraw less than 100,000 gallons per day, or 69.5 gallons per minute, is the fact that most of the Great Lakes states do not require reporting by users who withdrawal less than 100,000 gallons per day. *See* STATE OF THE GREAT LAKES 2009, *supra* note 17, at 290 (noting that "only in a few states (Minnesota, Illinois, Indiana and Ohio) are withdrawal data available per registered facility" and that the data has limited usefulness in locating users that are not required to report or facilities that have a capacity that is lower than the "statutory threshold"). However, there is evidence that at least some producers, including bottled water companies and other users, withdraw less than 100,000 gallons per day. *See* Tom Brennan, Senior Natural Res. Manager, Nestlé Waters N. Am., Testimony Before the Massachusetts Legislature's Committee on Environment Natural Resources Agriculture (Nov. 6, 2008), *available at* http://www.press.nestle-watersna.com/press/Testimony-delivered-by-Senior-Natural-Resource-Manager-Tom-Brennan-before-the-Massachusetts-legislat.htm (noting that, in contrast to municipal supplies, "[a] typical spring water source yields approximately 50–75 gallons per minute"); *see also* Polaris Institute, Southern Exposure: Private Canadian Bottled Water Company Moves South, http://www.polarisinstitute.org/southern_exposure_private_canadian_bottled_water_company_moves_south (last visited Oct. 1, 2010) (describing two cases where bottled water companies withdrew 100,000 gallons per day or less and therefore were not required to report their withdrawals).

A. Ensuring More Accurate Reporting of Withdrawals, Small-Scale Consumptive Uses, and Removals of Great Lakes Water

Given the conclusions of the IJC 2000 Report—that the cumulative impact of many straws slurping away at the Great Lakes milkshake is uncertain and should be monitored—individual states should adopt more stringent registration and reporting requirements. These more stringent standards should aim at closing the information loophole in order to reduce uncertainty and improve decision making about the cumulative effect of exporting bottled water and other water-containing products from the Great Lakes basin.

First, all non-negligible withdrawals, even those under 100,000 gallons per day, should be reported. Obviously, a determination will need to be made as to precisely what level of withdrawals should be considered to be negligible, and therefore escape reporting requirements. Second, the Great Lakes states should work diligently to improve the accuracy of information about withdrawals, consumptive uses, and removals of Great Lakes water. Following Minnesota's lead, those who withdraw Great Lakes water should be required to meter their withdrawals, regardless of what the water is used for.[149] In addition, as the Great Lakes Commission has recommended, users should be audited on a regular basis to ensure the accuracy and diligence of their reporting.[150] Third, the Great Lakes states should standardize consumptive use coefficients. In addition, the states should work together to improve the accuracy of the consumptive use coefficients. Doing so will provide a solid foundation for better understanding how much water leaves the basin, and evaluating the arguments of both the developers and the preservationists. Fourth, information about the amount of water that is withdrawn, lost in consumptive uses such as incorporation into products, and removed from the basin in any form should be made easily accessible to the general public.

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[149] MINN. STAT. ANN. §§ 103G.005(4), 103G.281(2) (West 2009) (requiring that "[a]n installation for appropriating or using water must be equipped with a flow meter to measure the quantity of water appropriated within the degree of accuracy required by rule."); *see also id.* § 103G.005(4) (defining "appropriating" to mean "withdrawal, removal, or transfer of water from its source regardless of how the water is used").

[150] *See* PEBBLES, *supra* note 17, at 15 (noting that a good first step would be to "require[e] actual measurements of withdrawals and returns where feasible and develop[] a quality control system with audits of facility measurement").

B. Two Paths to One Solution

Under the Compact, there are two pathways to enacting more stringent reporting requirements. First, the individual states could follow Minnesota's lead and voluntarily adopt more stringent registration and reporting requirements.[151] The weakness in this solution is that the reporting system is only as strong as its weakest link and, to be effective, all of the Great Lakes states would need to enact similar reporting requirements.

Second, the Council of Review could either recommend or require stricter reporting standards. Under the Compact, the Council of Review can, after public hearing and comment, require tougher standards by unanimously determining that the regulation is "necessary for the implementation and enforcement of [the] Compact."[152] Alternatively, the Council of Review also has authority to recommend more rigorous reporting requirements to the Parties.[153]

C. Advantages and Disadvantages of More Stringent Registration and Reporting Requirements

Enacting more stringent registration and reporting requirements would have several advantages. First, having accurate information would assist policymakers and scientists in determining whether or not the total amount of water leaving the Great Lakes exceeds the renewal rate. This information would be critical in determining whether more regulation is necessary.

Second, if more regulation is necessary to ensure the sustainability of the Great Lakes, the information would be useful for determining what level of regulation is appropriate. Specifically, to address the tragedy of the commons, it is important to know first whether there is a potential tragedy and, second, the appropriate degree of regulation.

Third, more information—not only about how much water is taken from the Great Lakes but also about the specific purposes for which it will be used—would assist decision-makers in determining which types of uses should be given preference. Assuming that one of the threats to the long-term sustainability of the Great Lakes is the potential cumulative impact of small-scale activities, policymakers should require information about those small-scale activities in order to make appropriate decisions about the allocation of resources.

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[151] *See* MINN. STAT. ANN. §§ 103G.005(4), 103G.281(2).

[152] Compact, Pub. L. No. 110-342, § 3.3(1), 122 Stat. 3739, 3746 (2008).

[153] *See id.* § 3.4, 122 Stat. at 3746–47 (imposing reporting requirements on each Party to the Compact).

Fourth, if increased future regulation is necessary, more information would be useful in ensuring that policymakers can tailor solutions that will survive challenges under NAFTA and GATT. Specifically, this information would enable policymakers to enact more stringent regulations by using it as evidence to demonstrate that the regulations are necessary to protect life under the "health exception," or to conserve exhaustible natural resources under the "conservation exception."[154]

There are also disadvantages to registering and reporting all water withdrawals and product exports. First, information comes at a variety of costs that need to be considered. These costs include, but are not limited to, the costs of implementing the program and the costs to the region if some businesses choose to move to locations with less stringent reporting requirements.[155] There would also be costs to designing and implementing a system that quickly and efficiently tracks products so as to distinguish those that are sent to locations inside of the basin from those that are sent outside of the basin.

Second, the states will need to decide who should bear the costs of the program. Given the necessary realignment of interests that helps prevent a potential tragedy of the commons, it seems reasonable to impose these costs on those who profit individually by taking from the collective resource. Given the requirements in Minnesota, Ontario, and Pennsylvania, these costs are unlikely to be prohibitive. In fact, if the information tends to support the position of the developers, the states will have a better foundation for arguing that less restrictive regulations are appropriate and, in the long run, may even recoup the costs of reporting. If, however, they are proved wrong, then imposing the costs on the private enterprises will be justified as means of addressing the potential tragedy that often befalls common resources.

CONCLUSION

Developers and preservationists approach environmental decision making in different ways. Their conclusions about whether more bottled water regulation is necessary are different, in part, because their assumptions are different. These differences may begin to merge, or at least be debated with greater knowledge and clarity, with

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[154] *See* IJC 2000 REPORT, *supra* note 14, at 33; *see also* GATT, *supra* note 28, art. XX; Slater, *supra* note 28, at 685–86.

[155] For a general discussion of costs associated with environmental regulations, see STEVEN C. HACKETT, ENVIRONMENTAL AND NATURAL RESOURCES ECONOMICS 181–93 (2006).

more information about water use in the Great Lakes states. The private enterprises that are benefitting from using water that is considered to be both a public and private resource should shoulder the costs of providing the information. If the information demonstrates that there is no negative effect from the cumulative effects of many straws slurping at a single resource, then less regulation is necessary. If the opposite is true, however, then more regulation is necessary. In the final analysis, the information will help determine if there is a problem and, if one exists, it will assist policymakers in tailoring an effective solution.

JEFFREY S. DORNBOS[†]

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