ALL ABOARD: NAVIGATING THE COURSE FOR UNIVERSAL ADOPTION OF THE PUBLIC TRUST DOCTRINE

By James Olson[*]

I. Overview and Summary of the Request for Public Trust Principles.... 136
A. Systemic Threats Call for a Unifying Governing Principle........... 136
B. Application of the Public Trust Doctrine as a Unifying Principle.. 139
C. North America's Great Lakes Basin as a Real World Context....... 140
D. Legal Basis for Applying Public Trust Principles in the Great Lakes Basin 142
II. The Historical Development of the Public Trust in the United States and Canada.. 145
A. Ancient Roots of the Public Trust Doctrine 146
B. The Public Trust Doctrine in the United States 147
i. *Illinois Central Railroad Co. v. Illinois*: "Lodestar" of Public Trust Law.. 148
ii. The Public Trust Doctrine in Great Lakes States........................ 151
C. The Right to Public Use of Navigable Waters in Canada.............. 164
D. The Public Trust and Treaty Rights of Indigenous Peoples 167
E. Public Trust in International Agreements and Great Lakes............ 169
III. The Modern Reach of the Public Trust Doctrine............................... 170
A. Basic Principles of the Public Trust Doctrine................................ 170
i. Non-Alienation and Need for Valid Public Purpose................... 170
ii. No Interference or Impairment 170
iii. Duty to Account for Protection of Public Trust Waters and Uses

[*] LL.M., University of Michigan; J.D., Detroit College of Law (Michigan State University College of Law). This article is based in significant part on a report to the International Joint Commission (referred to throughout this article as "IJC" or "Commission"). This report provided legal and policy background to assist the Commission in its consideration of the adoption of a new guiding principle based on the public trust doctrine for the exercise of its authority or responsibilities under the Boundary Water Treaty of 1909 and in the implementation of the Great Lakes Water Quality Agreement. This report was authored and prepared by James M. Olson, J.D., LL.M, Chair, Flow for Water, Public Trust Water Policy Center, with the assistance of Jeff Jocks, J.D., Ross Hammersley, J.D., Kate Redman, J.D., and William Rastetter (Of Counsel), of Olson, Bzdok & Howard, P.C. (Traverse City, Michigan), and in conjunction with Maude Barlow, Chair of the Council of Canadians, *Our Great Lakes Commons* report, as part of the Presentation to the IJC on the Great Lakes as a Commons Protected by Public Trust Principles (hereinafter "Presentation"). The authors would like to acknowledge and thank research associates: Jacqueline Goodrum, Molly Krauza, Marie Kyle, Hannah Smith, and Lindsay Walton, Vermont Law School Water and Justice Program and Visiting Professor Jack Tuhloske, Director of the Vermont Law School Water and Justice Program, as well as Ursula Jonsson, Communications Director for Flow for Water.

.... 171
B. Corollary Principles 172
i. Burden of Proof... 172
ii. "Nibbling" or Cumulative Effects... 172
iii. Affirmative Duty to Protect Flows, Level, and Water Quality... 173
iv. Accommodation or Balancing Uses.. 173
C. Flexible Nature of Public Trust Doctrine....................................... 174

IV. The IJC, Boundary Waters Treaty, and Public Trust Principles........ 179
A. Public Trust Principles Inherent in the Boundary Waters Treaty... 179
B. Integration of Public Trust Principles into the Boundary Waters Treaty and Great Lakes Water Quality Agreement.............................. 182
C. Potential Application of the Public Trust Doctrine......................... 185

V. Conclusion: An Overarching Guiding Principle in Public Trust........ 188
A. Public Trust Principles for Waters of the Great Lakes Basin......... 188
B. Toward a Public Trust in the Hydrologic Cycle............................. 190

I. OVERVIEW AND SUMMARY OF THE REQUEST FOR PUBLIC TRUST PRINCIPLES

A. Systemic Threats Call for a Unifying Governing Principle

At this time in history, it is evident that current efforts to address specific environmental problems are inadequate. For example, the regulatory permit systems and land preservation projects of the 20th century first introduced to protect parks and natural areas and later implemented in the 1970s and 1980s to prevent harmful water discharges, wetland fills, air emissions, and disposal of toxic wastes have failed to stem the worsening systemic human effects on water, land, soil, plants, atmosphere, habitat, wildlife, and human health. Reports and articles released into the digital "library," known as the cloud, underscore or even lament the billions spent to save globally and regionally significant conservation areas or features only to see their efforts scuttled by climate change or other systemic impacts.[1] The same lament could be made about the voluntary efforts of

1. Stephen Leahy, *Data Shows All of Earth's Systems in Rapid Decline*, INTER PRESS SERV. (July 29, 2011), http://ipsnews.net/news.asp?idnews=56685; Robert Z. Melnick, *Climate Change and Landscape Preservation: A Twenty-First-Century Conundrum*, J. PRESERVATION TECH. (2009) *available at* http://www.apti.org/clientuploads/pdf/Melnick-40-3-4.pdf; K.J. MULONGOY AND S.B. GIDDA, *The Value of Nature: Ecological, Economic, Cultural and Social Benefits of Protected Areas*, SECRETARIAT OF THE CONVENTION ON BIOLOGICAL DIVERSITY, MONTREAL (2008), *available at* http://www.cbd.int/doc/publications/cbd-value-nature-en.pdf; Eugene A. Rosa & Thomas Dietz, *Crossing Disciplinary Boundaries to Understand Human Drivers of Environmental Threats*, NATURE

international conservancy organizations. These groups have expended massive amounts of resources and manpower to save and preserve land, water, and related biological systems.[2] As successful as these directed regulation, preservation, and restoration efforts have been, the systemic threats to and demands on the commons—air, water, biological diversity—threaten to undermine the commitment of resources invested in these efforts and, even worse, could outstrip the natural capacity of the earth's systems.

The questions must then be asked: what can and should be done to assure that the systemic threats to the planet are minimized, or in some cases even reversed from worsening? What can be done to address melting polar ice caps, the shrinking glacial ice cover of Greenland, increasing global temperatures and evaporation, dramatically decreasing water levels and "dead zones" from algae blooms in the Great Lakes and Mississippi River basin, or the ravaging of other global regions by droughts, floods, and storms?

Much is being done through combined regulatory and voluntary actions by government, private non-profit organizations, and individuals to address these systemic threats, but will these efforts be enough? Will they work? Is it too late to incorporate meaningful principles into policies that promote adaptation and resilience, not acquiescence? Will human behavior really respond by incorporating the future into the present, and make decisions that benefit both themselves and future generations? So far, given the extraordinary social, political, economic, and scientific efforts to date, and worsening effects in practically every sector and region on the planet, something more fundamental, something game-changing, a shift in paradigm, framework, and principle is in order.

For example, the magnitude of these systemic threats, as well as the magnitude of harm from increasing demands on natural resources, is pushing our remaining water commons and exploited natural resources and ecosystems to their limits. Activities such as extraction of the Canadian "tar sands," deep horizontal hydro-fracturing, unchecked water mining, nutrient loading, or diversions of rivers to China's arid coal-rich-region in the north put immense pressure on our natural systems. These resources are exploited mostly to extend a fossil-fuel driven economy, with inevitably prolonged and increasing emissions of global warming gases, consumption of scarce water sources, continued pollution of the atmosphere, and alteration of the landscape. In some instances the industrialization required to support this continuing demand on natural resources, such as the use of extraordinarily

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PROC. (Aug. 1–6, 2010), http://precedings.nature.com/documents/5251/version/1/files/npre20105251-1.pdf.

2. Melnick, *supra* note 1; Rosa & Dietz, *supra* note 1.

high volumes of pressurized water mixed with chemicals used to fracture deep shale formations to capture oil and gas, has been implemented with little consideration of what will happen if human error disrupts the process or releases chemical or poisonous compounds into the commons of the earth.[3]

When something goes wrong, as it did with the "Deep Water Horizon" oil well in the Gulf of Mexico, the response is often one of surprise at having been caught off guard, or chalked up to human error, rather than asking whether the scope or magnitude of impacts on our common air, water, and ecosystems from the massive scale of technology and development have gone too far.[4]

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3. *See generally* U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-12-880, REP. TO THE RANKING MEMBER, COMM. ON SCI., SPACE, AND TECH., H.R., ENERGY-WATER NEXUS: COORDINATED FEDERAL APPROACH NEEDED TO BETTER MANAGE ENERGY AND WATER TRADEOFFS (2012) (discussing water and energy as being "inextricably linked and mutually dependent, with each affecting the other's availability," and recommending that "uncertainties affecting energy and water resources cannot be ignored because they could significantly affect the future supply and demand of both resources."); *See also* Anthony Andrews et al., *Unconventional Gas Shales: Development, Technology, and Policy Issues*, CONGR. RES. SERV. R40894 (Oct. 30, 2009), http://www.fas.org/sgp/crs/misc/R40894.pdf; Randy M. Awdish, *Wolverine Gold Rush? The Utica/Collingswood Shale Gas Play: Michigan's Answer to the Marcellus Shale*, PEPPER HAMILTON LLP (Mar. 25, 2011), http://www.pepperlaw.com/publications_update.aspx?ArticleKey=2057; Heather Cooley & Kristina Donnelly, *Hydraulic Fracturing and Water Resources: Separating the Frack from the Fiction*, PAC. INST., 23 (2012) http://www.pacinst.org/wp-content/uploads/2013/02/full_report35.pdf; Rebecca Hammer & Jeanne VanBriesen, *In Fracking's Wake: New Rules are Needed to Protect Our Health and Environment from Contaminated Wastewater*, NRDC (May 2012), http://www.nrdc.org/energy/files/Fracking-Wastewater-FullReport.pdf; Robert Myers, *The Environmental Dangers of Hydro-Fracturing the Marcellus Shale*, DAMASCUS CITIZENS FOR SUSTAINABILITY (Jan. 3, 2012), http://www.damascuscitizensforsustainability.org/2012/01/the-environmental-dangers-of-hydro-fracturing-the-marcellus-shale/; Keith Schneider & Codi Yeager, *Fossil Fuel Boom Shakes Ohio, Spurring Torrent of Investment and Worry Over Water*, CIRCLE OF BLUE (Mar. 12, 2012), http://www.circleofblue.org/waternews/2012/world/fossil-fuel-boom-shakes-ohio-spurring-torrent-of-investment-and-worry-over-water/; Michigan's Governor Richard Snyder recently announced Michigan's involvement with a generic study on the impacts from hydraulic fracturing of deep shale rock formations for oil and natural gas on water, state lands, and communities, conceding that the state had jumped into fracking state lands and issuing permits on private lands without answers to questions concerning fundamental impacts or effects, David Eggert, *Gov. Snyder Talks up Trails, Fracking, Great Lakes in Broad Energy Speech*, MICH. LIVE (Nov. 29, 2012), http://www.mlive.com/news/index.ssf/2012/11/snyder_energy_message.html. Only New York has followed the traditional requirement of generic or programmatic environmental impact statements before authorizing deep shale horizontal fracturing oil and gas development.

4. *See* Rafe Sagarin & Mary Turnipseed, *Commentary: The Gulf Oil Disaster and the Public Trust Doctrine*, MCCLATCHY NEWSPAPERS (June 11, 2010), http://www.mcclatchydc.com/2010/06/11/95601/commentary-the-gulf-oil-disaster.html (discussing the use of Public Trust Doctrine in the context of gulf oil spill). The idea of going "too far" is perhaps not enough, but at the very least, it would require both recognition of the interests at stake and some outer limit beyond which actions and behavior, or their effects, are not allowed to go—an umbrella protection on the commons in the same way outer limits are imposed on the confiscation or overburdening of private property, *see, e.g.*, Pennsylvania Coal Co. v. Mahon, 260 U.S. 393, 415–16 (1922) (recognizing that too much regulation may constitute a takings), *see Illinois Central*, *infra*, note 43 (explaining the public trust doctrine and how it can work in conjunction with private interests); *see* Barton H. Thompson, Jr., *The Public Trust Doctrine: A Conservative Reconstruction & Defense*, 15

B. Application of the Public Trust Doctrine as a Unifying Principle

This article evaluates the application of the public trust doctrine or its principles, as those principles have evolved over the past 100 years, as a means of addressing the growing systemic threats to the earth's water, ecosystems, and natural communities. This article examines whether the doctrine could play a new positive and unifying role in addressing these threats by establishing an umbrella or outer limits on government and private actions that contribute to or increase these systemic threats. The article concludes that if the public trust doctrine already applies to, and protects, lakes, streams, and navigable waters, then because these waters are critical components of the hydrologic cycle, threats to any part of the hydrologic cycle that effect public trust waters can be addressed or remedied under the public trust doctrine. Finally, the article submits that there should be an exploration of applying public trust principles to the hydrologic cycle as a means to view and solve these threats holistically.

There is an urgent need to take a holistic and scientifically informed approach to creating policies that will protect the hydrologic cycle.[5] The public trust doctrine—or at least its principles—offer a legal construct to integrate our understanding of energy production, food systems, and climate change with the hydrologic cycle. In a number of recent innovative lawsuits filed by young Americans claiming to be the immediate beneficiaries of a public trust in the atmosphere, plaintiffs have sought to address the impacts of climate change through the imposition of affirmative

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SOUTHEASTERN ENVTL. L.J. 47, 47–48 (2006) (emphasizing that the public trust doctrine should be attractive to both ends of the political (private property-regulation) spectrum and balancing competing uses is a tenet of public trust law.); Barton H. Thompson, Jr., *Water as a Public Commodity*, 95 MARQ. L. REV. 17, 17–20 (2011) (suggesting that balancing water as a commodity and public trust could, in some instances, limit the diversion or use of water to protect the public trust and could constitute a takings). While balancing competing uses is a tenet of public trust law, this article would argue that public trust law and private or even public uses are balanced based on the nature of the competing uses and the extent and nature of risk and magnitude of harm or interference on public trust uses and resources. Joseph Sax, *The Limits of Private Rights in Public Waters*, 19 ENVT'L L. 473, 475, 482 (1989); See discussion of public trust principles, *supra* Section III. Courts, like Justice Holmes in Pennsylvania Coal Co v. Mahon, *supra*, have inherent judicial power to determine when a use has "gone too far" and violates the public trust, in which amounts to no takings because the public trust is inherently a "background principle" of property law. Lucas v. S.C. Coastal Council, 505 U.S. 1003, 1029 (1992).

5. *See* Suzanne Goldenberg, *Climate Change Set to Make America Hotter, Drier and More Disaster-Prone*, GUARDIAN (Jan. 11, 2013), http://www.theguardian.com/environment/2013/jan/11/climate-change-america-hotter-drier-disaster/print (describing how fossil fuels and human-induced climate change will produce droughts, storms, rising seas, and lowering water tables); Robin K. Craig, *Climate Change, Regulatory Fragmentation, and Water Triage*, 79 U. COLO. L. REV. 825, 831 (2008); Robin K. Craig, *Adapting to Climate Change: The Potential Role of State Common-Law Public Trust Doctrines*, 34 VT. L. REV. 781, 781 (2009).

duties on government to stop climate change inducing gases like carbon dioxide.[6]

While the atmosphere is undoubtedly connected to public trust waters, and a commons in the air held by government for the public is based on ancient legal principles, it remains to be seen whether air or the atmosphere itself is subject to the public trust doctrine.[7] However, what is suggested here is less ambitious: climate change impacts, such as habitat shifting from global warming and weather changes, are directly related and connected to traditional public trust waters through the hydrologic cycle. Climate change effects and impacts are thus subject to the public trust doctrine if it can be demonstrated that such effects result in significant impacts to navigable or other public trust waters or uses are attributable to climate change and releases of greenhouse gases.[8]

C. North America's Great Lakes Basin as a Real World Context

In order to better explore the questions raised above, a real world context is helpful. The freshwater seas of North America, the five Great Lakes and their connecting and tributary waters and ecosystems, represent nearly twenty percent of the world's fresh surface water and are home to 35 million people spread over eight states and two provinces. Because the Lakes face worsening systemic harms and threats from a multitude of interacting conditions and circumstances—global warming and climate change, rapidly dropping water levels, invasive species like quagga mussels and Asian Carp, excessive water demand and consumption, diversions and exports, nutrient loading, and stormwater and sewage overflows—the area of the Great Lakes Basin offers a valuable context for the purposes of this article. Moreover, the Great Lakes are managed as "boundary waters"

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6. MICHAEL C. BLUMM & MARY CHRISTINA WOOD, *The Global Public Trust and Co-Trustee Management*, *in* TRUST DOCTRINE IN ENVIRONMENTAL AND NATURAL RESOURCES LAW 333, 349–65 (2013); Alexandra Klass, *Will the Atmosphere Make it as the Public Trust Doctrine's Next Frontier?*, AM. CONST. SOC'Y BLOG (May 9, 2011), http://www.acslaw.org/acsblog/will-the-atmosphere-make-it-as-the-public-trust-doctrines-next-frontier; *see also* Debra Cassens Weiss, *New Climate Change Suits Take Unusual 'Pubic Trust' Approach*, A.B.A. J., (May 5, 2011), http://www.abajournal.com/news/article/new_climate_change_suits_take_unusual_public_trust_approach/ (reporting a similar lawsuit filed by Our Children's Trust). See, however, a more direct claim in the complaint filed, Farb v. Kansas, (No. 12-C-1133), in which the plaintiff alleges a direct connection between the burning of fossil fuels, increased CO2 levels, climate change, and impacts on public trust water resources of the state, Petition for Declaratory Judgment, for Writ of Mandamus and Application for Injunctive Relief, Farb v. Kansas, (No. 12-C-1133), 2012 WL 5974335 (D. Kan. Oct. 18, 2012).

7. BLUMM & WOOD, *supra* note 6; Klass, *supra* note 6.

8. See Part III of this article on the modern application of the public trust doctrine, particularly *infra* note 188 and accompanying text.

between two countries—Canada and the United States—under the Boundary Waters Treaty of 1909.[9]

Additionally, the Lakes are governed by the Great Lakes Water Quality Agreement,[10] recently reaffirmed by the United States and Canada in 2012, as well as federal and state provincial air, water, and other environmental and natural resource regulations. Most importantly, for the purposes of this article, the Great Lakes and their connecting and tributary navigable waters are subject to and protected by the public trust doctrine, as it is known in the United States, and a public right in navigable waters that have been historically characterized as "held in trust" in Canada.[11]

The Great Lakes also reflect the impacts of systemic threats to water, air and ecosystems described at the outset of this article. In the summer of 2011, 3,000 square miles of western Lake Erie, nearly one-third of the lake's area, turned into a blue-green algae soup resulting in the closure of beaches, damage to the fishing industry, and substantial interference with boating and recreation. The massive algae bloom, and resulting "dead zone" in the Lake, was caused by the interaction of invasive mussels, increased water temperatures, nutrient run-off from farmland, and discharges from stormwater or waste water systems to streams and rivers more than 100 miles upstream of Lake Erie. By February 2013 water levels in Lake Michigan and Lake Huron, a single hydrologic unit, reached record low levels, upending shipping, navigation, recreation, wetland and fish spawning habitat, and creating havoc for tourism, recreational and commercial harbors, and lakefront owners. The interaction of natural processes and human behavior, such as climate change, dredging, and the diversion of 3,200 cubic feet of Lake Michigan water per second through the Chicago River canal, combine to physically diminish the quantity and quality of water and uses of the Great Lakes and tributary waters.

If the public trust doctrine applies to these waters, as this article establishes, and carries with it a limitation on activities or uses that impact an affirmative duty to protect these waters and their public uses, and in some instances related private reasonable use, from one generation to the

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9. Convention Concerning the Boundary Waters Between the United States and Canada, U.S.-Gr. Brit., Jan. 11, 1909, 3 U.S.T. 2607, 2607 [hereinafter Boundary Waters Treaty].

10. Great Lakes Water Quality Agreement of 1972, U.S.-Can., Apr. 15, 1972, 23 U.S.T. 301. It was later amended in 1978 and 1987. *See generally* Great Lakes Water Quality Agreement, U.S.-Can., Apr. 15, 1972, 23.1 U.S.T. 301 *as amended by* Great Lakes Water Quality Agreement [hereinafter GLWQA], US.-Can., Nov. 22, 1978, 30.2 U.S.T. 1383, and Great Lakes Water Quality Agreement of 1987, U.S.-Can., Nov. 18, 1987 (collectively referred to hereinafter as the "Great Lakes Water Quality Agreement" or "GLWQA"), *available at* http://www.ijc.org/rel/agree/quality.html.

11. See Sec. IIC, *infra* p. 28; Michael C. Blumm & Rachel D. Guthrie, *Internationalizing the Public Trust Doctrine: Natural Law and Constitutional and Statutory Approaches to Fulfilling the Saxien Vision*, 45 U.C. Davis L.R. 741, 801–07 (2012).

next, could it be a comprehensive tool for protecting these waters? Does the doctrine or its set of principles offer a universal or unifying approach to addressing these larger threats to the Great Lakes through understanding the natural and human interactions of these waters and their diversion and use?

D. Legal Basis for Applying Unifying Public Trust Principles in the Great Lakes Basin

Under the English common law, members of the public enjoyed a paramount right to the sea, bays, inlets, foreshore and tributary navigable waters for public uses, including navigation, boating, and fishing.[12] These rights are often referred to as the *jus publicum*.[13] The crown held the waters in trust for the public, and the crown or the crown's grantees of the foreshore or beds of these waters could not sell or alienate this public right or interfere with the public uses protected by it.[14] Canadian and American laws have recognized this ancient principle, which is known today as the "public trust doctrine."[15] From the settling of both Canada and the United States, the public right has been part of the daily life of every person, business, farmer, government leader, and community on the boundary waters. The right of public use continues to be held by both governments in a "solemn and perpetual trust."[16] The right protecting public uses of navigable waters could provide a comprehensive approach in the 21st century for unifying and integrating the protection and management of uses, quantity, and quality of water of the Great Lakes, St. Lawrence River, and other boundary waters.

As noted above, the Great Lakes basin and its ecosystem are in ecological crisis and face many challenges. These include a rapidly increasing demand and competition for freshwater; continuing influxes of invasive species such as quagga mussels; dead zones; loss of fish

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12. Lord Chief Justice Hale of England authored the seminal treatise on this topic. *See* Sir Matthew Hale, *De Jure Maris*, *in* A HISTORY OF THE FORESHORE AND THE LAW RELATING THERETO 370, 372 (3d. Ed. 1888) (providing the seminal treatise on this topic).

13. BLACK'S LAW DICTIONARY 879–80 (9th ed. 2009) (defining *jus publicum* as "[t]he right, title, or dominion of public ownership; esp., the government's right to own real property in trust for the public benefit," which is distinguishable from *jus privatum*, defined as "[t]he right, title, or dominion of private ownership").

14. *See* Sir Matthew Hale, *supra* note 12.

15. Joseph L. Sax, *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention*, 68 MICH. L. REV. 471, 474 (1970); Charles F. Wilkinson, *The Headwaters of the Public Trust: Some of the Traditional Doctrine*, 19 ENVTL. L. 425, 425–26 (1989); *see generally* DAVID C. SLADE ET AL., COASTAL STATES ORG. INC., PUTTING THE PUBLIC TRUST DOCTRINE TO WORK (2nd ed. 1997) *available at* http://www.shoreline.noaa.gov/docs/8d5885.pdf (detailing the origins, history, and current application of the public trust doctrine).

16. Collins v. Gerhardt, N.W. 2d 115, 118 (Mich. 1926).

populations; climate change;[17] increasing energy and food demands; and increasing demand for drinking water.[18] Although the governments and inhabitants have confronted many challenges to the Great Lakes, the Great Lakes commons have never been so threatened by so many potential losses, harms, or risks, of such systemic or overwhelming magnitude.[19] These threats challenge the very core of our existing water and environmental regulatory framework, which currently is fragmented and addresses only specific actions that result in localized harms.

The rights, duties, and principles embedded in the public trust doctrine could offer a comprehensive and unified framework to address these challenges. The public trust doctrine provides a duty to account for public trust values and holds governments and individuals responsible when

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17. The evidence of climate change and its effects on flows or levels of water bodies, like the Great Lakes or their tributary waters, suggests that climate change or global warming may be the largest diversion of these waters of all. In this sense, while current regulatory efforts concerning the Great Lakes focus on surface waters or groundwater, these are but a small portion of the arc of the entire water or hydrological cycle. Properly viewed as a single hydrologic system, the water cycle itself could be viewed at least for considering the effects on flows or levels as a public trust for purposes of considering diversions and uses of the Great Lakes boundary waters. *See generally* Craig, *supra* note 5, at 783.

18. For a summary of losses and threats to the Great Lakes boundary waters and ecosystem, *see* MAUDE BARLOW, REPORT: OUR GREAT LAKES COMMONS—A PEOPLE'S PLAN TO PROTECT THE GREAT LAKES FOREVER 9–13 (2011), *available at* http://www.canadians.org/sites/default/files/publications/GreatLakes%20Commons%20report%20-%20final-Mar2011.pdf.

19. The principles of the "Commons" assert that no one owns water; instead it is a public good that belongs in common to all living things, including future generations. See *id* at 24 (articulating the idea of a Great Lakes Basin Commons); MAUDE BARLOW & JAMES OLSON, REPORT TO THE INT'L JOINT COMM'N ON THE PRINCIPLES OF THE PUBLIC TRUST DOCTRINE app. Tab 10 at 1–6 (Nov. 30, 2011), *available at* http://flowforwater.org/wp-content/uploads/2013/02/Edited-12-01-11-Report-to-IJC-on-Public-Trust-Principles-w-cover-pg.pdf [hereinafter IJC PUBLIC TRUST REPORT] (report and appendix available electronically at the end of this book); *see also, e.g.*, Borre, Lisa, *Where Did the Water Go? Busting 5 Myths About Water Levels on the Great Lakes*, Water Currents, NAT'L GEOGRAPHIC (Aug. 20, 2013), http://newswatch.nationalgeographic.com/2013/08/20/where-did-the-water-go-busting-5-myths-about-water-levels-on-the-great-lakes/ (identifying increased evaporation and climate change as the main contributors to the record drop in water levels); INT'L GREAT LAKES-ST. LAWRENCE ADAPTIVE MGMT. TASK TEAM, BUILDING COLLABORATION ACROSS THE GREAT LAKES-ST. LAWRENCE RIVER SYSTEM: AN ADAPTIVE MANAGEMENT PLAN FOR ADDRESSING EXTREME WATER LEVELS, INT'L. JOINT COMM'N i, i–ii (May 30, 2013), http://ijc.org/files/tinymce/uploaded/documents/reportsAndPublications/FinalReport_Adaptive%20Management%20Plan_20130530.pdf; LAKE ERIE ECOSYSTEM PRIORITY (LEEP), SCIENTIFIC FINDINGS AND POLICY DEVELOPMENTS TO REDUCE NUTRIENT LOADING AND HARMFUL ALGAL BLOOMS, INT'L JOINT COMM'N ii, ii–iv (Aug. 2013), http://www.ijc.org/files/tinymce/uploaded/Draft%20LEEP-Aug29Final.pdf; Jerry L. Rasmussen et al., Dividing the Waters: The Case for Hydrological Separation of the North American Great Lakes and Mississippi River Basins, 37 J. OF GREAT LAKES RES. 588, 588 (2011), http://csis.msu.edu/sites/csis.msu.edu/files/Carp_Taylor.pdf; James M. Olson & Elizabeth R. Kirkwood, FLOW, COMMENT TO THE INT'L JOINT COMM'N, ON DRAFT ADAPTIVE MANAGEMENT PLAN FOR ADDRESSING EXTREME WATER LEVELS (Apr. 15, 2013), http://flowforwater.org/wp-content/uploads/2013/04/2013-04-15-Adaptive-Mgmt-Comments-FINAL.pdf.

these values have been brushed aside.[20] We should bring back to center stage these public trust values and concerns, which are so essential to the protection of long term community, environmental, and economic stability from generation to generation. When core public trust interests are ignored or minimized, the demands of special more narrow interests in our public and common resources take the spotlight.[21] This, in turn, inevitably leads to suppression and eventual erosion or even loss of the public trust values and the obfuscation of the duty to protect an enforceable right to ensure continued public use of these common waters and natural resources.[22] Public trust principles can resolve complex threats to the Great Lakes boundary waters and ecosystem, yet are flexible enough to allow for adaption to the changing needs of future generations.[23] Perhaps the time, place, and importance of the public trust in the Great Lakes Commons have reemerged.[24]

The International Joint Commission (IJC) has the capacity to build upon a legacy of public trust, that will over the long term, protect these common waters and their paramount public uses. It has a strong historical commitment under the Boundary Waters Treaty to resolve disputes between the countries and their inhabitants and to protect the integrity of the quantity

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20. Jeffrey W. Henquinet & Tracy Dobson, *The Public Trust Doctrine and Sustainable Ecosystems: A Great Lakes Fisheries Case Study*, 14 N.Y.U. ENVTL. L.J. 322, 345–46 (2006).

21. Craig, *supra* note 5; Carol Necole Brown, *Drinking from a Deep Well: The Public Trust Doctrine and Western Water Law*, 34 FLA. ST. U. L. REV. 1, 2 (2006); Melissa K. Scanlan, *Implementing the Public Trust Doctrine: A Lakeside View into the Trustees' World*, 39 ECOLOGY L.Q. 123, 126 (2012); James M. Olson, *Navigating the Great Lakes Compact: Water, Public Trust, and International Trade Agreements*, 2006 MICH. ST. L. REV. 1103, 1140 (2006).

22. *See* People *ex rel.* Scott v. Chi. Park Dist, 360 N.E.2d 773, 780–81 (Ill. 1976) (holding that the incidental economic benefits and jobs from a private project could not be used to justify the transfer and subordination of public trust natural resources for a primarily private purpose). *But cf.* Friends of the Parks v. Chi. Park Dist., 786 N.E.2d. 170 (Ill. 2003) (holding Soldier Field is held in trust by the state and therefore improvements are for public use despite the private benefit to the Chicago Bears).

23. *See generally* Cynthia L. Koehler, *Water Rights and the Public Trust Doctrine: Resolution of the Mono Lake Controversy*, 22 ECOLOGY L.Q. 541, 550 (1995); Bertram C. Frey & Andrew Mutz, *The Public Trust in Surface Waters and Submerged Lands in the Great Lakes*, 40 U. Mich. J.L. Reform 907-93 (2007).

24. *See generally* Ralph Pentland, *Public Trust Doctrine—Potential in Canadian Water and Environmental Management*, POLIS (June 2009), http://poliswaterproject.org/sites/default/files/public_trust_doctrine.pdf (discussing Canadians potential use of Public Trust Doctrine); John C. Maguire, *Fashioning an Equitable Vision for Public Resource Protection and Development in Canada: The Public Trust Doctrine Revisited and Reconceptualized*, 7 J. ENVTL. L. & PRAC 1, 16 (1997); OLIVER M. BRANDES & RANDY CHRISTENSEN, THE PUBLIC TRUST AND A MODERN BC WATER ACT 1 (2010), *available at* http://poliswaterproject.org/sites/default/files/public_trust_brief_2010-1.pdf; Scanlan, *supra* note 21, at 128; Olson, *supra* note 21; Brown, *supra* note 21, at 3; *See generally* Alexandra Klass, *Modern Public Trust Principles: Recognizing Rights and Integrating Standards*, 82 NOTRE DAME L. REV. 699 (2006) (describing modern public trust principles generally, including their application throughout the Great Lakes states).

and quality of the boundary waters, their related ecosystems, and the rights of the public to use these shared waters.[25] Article I of the Treaty, like court decisions of both countries, recognizes that the boundary waters should be kept free and open for public use.[26] Decisions under Article III reference other reports regarding pollution, flows and levels, and related issues under Articles III, IV, VIII, and IX, have applied a cooperative and commons-based governance approach for Great Lakes and the many interests, including rights of the public, which use or depend on the integrity of these waters.[27] Public uses or interests protected by the public trust doctrine have also been the subject of numerous IJC decisions, reports, and recommendations, including: navigation; boating; fishing; swimming; other forms of recreation; fish, habitat, and food chain; wetlands, and the integrity of the ecosystem.[28] The IJC's strong commitment is unique and critical for both countries; the provinces and states; and their communities, businesses, and citizens who face the myriad of existing and future threats to the Great Lakes and St. Lawrence River waters.

The balance of this report will demonstrate that a commons and public trust approach fits elegantly within the common law of the two countries, the provinces and states, the shared heritage of their people, and the Boundary Waters Treaty.

II. THE HISTORICAL DEVELOPMENT OF THE PUBLIC TRUST IN THE UNITED STATES AND CANADA

The principles of the public trust, derived from English common law and ancient Roman law principles, have been integrated into both Canadian and American common law, as well as into the civil law system of Quebec.[29] These legal systems recognize special public properties or natural resources in which the whole public has an interest as part of the *jus publicum*. Public trust principles impose outer limits on how and to what extent governments can reallocate and transfer property falling within the

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25. Boundary Waters Treaty, *supra* note 9; LEE BOTTS & PAUL MULDOON, EVOLUTION OF THE GREAT LAKES WATER QUALITY AGREEMENT 191–95 (2005).

26. Boundary Waters Treaty, *supra* note 9, at 2608.

27. *Id.* at art. III, IV, IIX, IX.

28. *See supra* notes 20–24 and accompanying text (identifying the numerous public uses and interests subject to the public trust doctrine).

29. Quebec has enacted a "*patrimoine commun*" principle in its new water law that declares water a "collective resource" of "common heritage," protected by a principle *l'etat guardien*, making the province "custodian" of its water resources. Sarah Jackson et al., *Lessons from an Ancient Concept: How the Public Trust Doctrine Will Meet Obligations to Protect the Environment and the Public Interest in BC Water Management*, *in* L'ENVIRONNEMENT, NOTRE PATRIMOINE COMMUN ET SON ÉTAT GARDIEN: ASPECTS JURIDIQUES NATIONAUX, TRANSNATIONAUX ET INTERNATIONAUX 279–300 (P. Halley & J. Sotousek eds., 2012).

ambit of the public trust, with the ultimate goal of ensuring the long term survival or sustainability of these commons and the people and life that depend on them.[30]

A. Ancient Roots of the Public Trust Doctrine

The theory of a commons and the right to public use of water in Canada and the United States can be traced to the principle of *jus publicum* in the Justinian Codes of Rome in 529 A.D.:

> The following things are by natural law common to all—the air, running water, the sea, and consequently the sea shore . . . But they cannot be said to belong to any one as private property, but rather are subject to the same law as the sea itself, with the soil or sand which lies beneath it.[31]

Common natural resources, like moving water, were understood to be held by government for the benefit of the people, imposing upon the government a responsibility to safeguard the public's free use of these natural commons.[32]

This principle passed down into English common law through the Magna Carta.[33] Under English common law, the sea, the soil under the sea and over which the sea ebbed and flowed, and the seashore between the low

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30. The recent presentation after the IJC Biennial Meeting, Town Hall Session, by U.S. Co-Chair, Lana Pollock, is a good example of how public trust principles could provide a residual exercise of power and recommendation by the IJC as an outer limit. Co-Chair Pollock illustrated the data showing, convincingly, the loss of 85% of the tiny shrimp (*diporeia*) in the last 15 years from invasive quagga mussels. The oil spill that continues to plague the shore in the Gulf of Mexico is another example; See also discussion in Section IV, *infra*. To a greater or lesser extent, each of the magnitude of these losses and threats overwhelm or exceed the capacity of the public trust waters and ecosystem to sustain itself as needed for changing and important public needs for both present and future generations. If this question and principle is not ever present in decision making, the true nature of the values at risk and the limits imposed by a fiduciary duty to future generations is lost or breached.

31. *See* INSTITUTES OF JUSTINIAN, bk. 2, tit. 1, sec. 1–5, *available at* http://www.gutenberg.org/files/5983/5983-h/5983-h.htm#link2H_4_0029; *see also* Maguire, *supra* note 24 (tracing the Justinian Code's public right or commons in water to the 2nd century and the Institutes and Journal of Gaius); Scanlan, *supra* note 21, at 126; HELEN F. ALTHAUS, PUBLIC TRUST RIGHTS 23 (1978); Sax, *supra* note 15, at 475–78.

32. Allan Kanner, *The Public Trust Doctrine, Parens Patriae, and the Attorney General as the Guardian of the State's Natural Resources*, 16 DUKE ENVTL. L. & POL'Y F. 57 (2005).

33. *See generally* Transcript of The Magna Carta (1297) (Nicholas Vincent trans., Sotheby's Inc., 2007), *available at* http://www.archives.gov/exhibits/featured_documents/magna_carta/print_friendly.html?page=translation_content.html&title=Magna_Carta (discussing the principle of liberty and people's fundamental rights and limitation on the power of the Crown. These ideals became instrumental in protecting the public's right to use and depend on navigation, the sea, and waters for fishing and survival.). *See* Sax, *supra* note 15, at 476.

and high water marks, was held by the Crown; but it was considered to be held in trust for the protection of the public's uses of these waters and as common property.[34] Neither the Crown nor private persons could interfere with or alienate the natural and fundamental right of the public to use navigable waters and their foreshore for public uses, including navigation, boating, or fishing.[35] As one court described the English doctrine in 1821:

> Other [forms of property] remain common to all the citizens . . . Of this latter kind . . . are the air, the running water, the sea, the fish, and the wild beasts . . .But inasmuch as the things which constitute this common property are things in which a sort of transient usufructuary possession, only, can be had; . . . therefore, the wisdom of that law has placed it in the hands of the sovereign power, to be held, protected, and regulated for the common use and benefit.[36]

B. The Public Trust Doctrine in the United States

The courts in the United States have generally protected the public's use of navigable waters and the lands beneath them from sale, interference, or harm under the common law.[37] When the colonies won independence from England, ownership and control over navigable waters, shores, and common natural resources, like air and wildlife, vested in each of the sovereign states for the benefit of their citizens.[38] The federal government reserved for itself and all citizens a right of navigation over navigable

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34. Commonwealth v. Alger, 61 Mass. 53, 83 (Mass. 1851) (citing English common law's public trust doctrine) (citing Lowe v. Govett, 3 B. & Ad. 863; King v. Montague, B. & C. 598).

35. *See* Sax, *supra* note 15, at 476; *see also* Martin v. Waddle's Lessee, 41 U.S. 367, 413–14 (1842) (explaining the navigable waters are held by the state as a public trust).

36. Arnold v. Mundy, 6 N.J.L. 1, 71 (1821) (internal citations omitted and emphasis in original); *Martin*, 41 U.S. at 383 (citing *Arnold*, 6 N.J.L. 1). Professor Joseph L. Sax, as recently quoted by Melissa Scanlan in a critique of the Compact, said, "[w]ater is and always has been a public resource." Melissa K. Scanlan et al., *Realizing the Promise of the Great Lakes Compact: A Policy Analysis for State Implementation*, 8 VT. J. ENVTL. L. 39, 44 (2006) (quoting Joseph L. Sax, *The Limits of Private Rights in Public Waters*, 19 ENVTL. L. 473, 475 (1989)). *See also* Strobel v. Kerr Salt Co., 164 N.Y. 303, 320–21 (N.Y. 1900) (explaining the historical right to access water because state holds the waters in trust for citizens).

37. *See e.g.*, *Alger*, 61 Mass. at 82–83 (protecting Massachusetts's sea, shores, bays, coves, and tide waters); *Arnold*, 6 N.J.L. at 71. *See e.g.*, *Strobel*, 164 N.Y. at 320, 321 (holding that the defendant's use and diversion of the stream's water, unknown to the state, constitutes an unreasonable use).

38. *See Alger*, 61 Mass. at 82 (discussing how the rights vested in the state passed from England to the sovereign states); *See also, New Orleans v. United States*, 35 U.S. 662, 737 (1836) (explaining how the public trust passed from the English crown to the several states); *See Pollard v. Hagan*, 44 U.S. 212, 228–29 (1845) (holding Alabama maintains the public trust as other sovereign states do under the Constitution).

waters and the power to pass laws to improve and manage navigation,[39] including the power of Congress to pass laws to regulate commerce.[40] Based on principles of sovereignty and the public's rights in common public natural resources, courts ruled that water and related natural resources were held in trust for the security and protection of the public rights in navigation and fisheries.[41] State courts also generally decided that these public trust resources could not be sold or alienated by the state or owned or controlled by private persons or interests.[42] Thus, while the scope or standards of the public trust may vary from state to state, all recognize and follow this principle that protects the rights of the public to use navigable waters for navigation, boating, and fishing.

i. *Illinois Central Railroad Co. v. Illinois*: "Lodestar" of Public Trust Law

In the seminal case of *Illinois Central Railroad Co. v. Illinois*, the United States Supreme Court affirmed the foundational nature of the public trust doctrine and its applicability to the Great Lakes and navigable waters.[43] The question before the Court was whether the state legislature of Illinois had the authority to convey to a private railroad company one square mile of Lake Michigan, including lands formerly submerged by the lake, for expansion of the company's industrial operations.[44] The Court ruled that the conveyance was beyond the authority of the state legislature because all of the Great Lakes, including Lake Michigan, were owned by the states as sovereigns at the time of admission to statehood, and that the waters and land beneath them were held in trust for the benefit of citizens for navigation and other public uses.[45] The Court reasoned that under the public trust doctrine it was beyond the power of the state to transfer or convey public trust waters and land for private purposes, or in a manner impairing the public trust and the public's protected right of public use.[46]

39. United States v. Willow River Power Co., 324 U.S. 499, 509–10 (1945) (federal navigational servitude allows the government to displace or at least subordinate state-recognized property rights in order to ensure the right of public navigation.)

40. *Alger*, 61 Mass. at 81–83.

41. *Id.* at 93 ("We think it clear therefore, that the colony charter, revived and confirmed as it was by the province charter, was not a mere grant of the soil of the territory of Massachusetts, but carried with it so much of the royal prerogative, as was necessary for holding, appropriating, and governing the sea and its shores, arms and branches, and also so much, as was necessary for securing the acknowledged common and general right of the subjects to its free navigation and fisheries.").

42. *Id.* at 82–83; *See also* Section II.B.ii., *infra*.

43. Ill. Cent. R.R. v. Illinois, 146 U.S. 387, 436–37, 459 (1892) (hereinafter *Illinois Central*).

44. *Id.* at 433–34, 438.

45. *Id.* at 452–53.

46. *Id.*

The *Illinois Central* case is viewed as an essential statement on the public trust doctrine not only because of its holding but also because the *Illinois Central* Court discussed the attributes of the public trust doctrine at length. This discussion included the underlying purposes of the doctrine and how the scope of the doctrine may change to fit different circumstances as necessary to ensure the invaluable purposes of the doctrine were protected.

To begin with, the Court explained that in the United States the public trust doctrine applied not only to tidal bodies but also navigable waters such as the Great Lakes because the underlying rationale of the public trust doctrine applied to both:

> Some of our rivers are navigable for great distances above the flow of the tide; indeed, for hundreds of miles, by the largest vessels used in commerce. As said in the case cited: "There is certainly nothing in the ebb and flow of the tide that makes the waters peculiarly suitable for admiralty jurisdiction, nor anything in the absence of a tide that renders it unfit. If it is a public navigable water, on which commerce is carried on between different States or nations, the reason for the jurisdiction is precisely the same. And if a distinction is made on that account, it is merely arbitrary . . .[47]

Further, the Court explained that in light of the fact that the underlying purpose of the doctrine is to ensure the freedom of public use in navigable waters, the scope of uses protected by the public trust and the manner in which the state exercised its authority might change over time, as the needs of the public changed:

> The public being interested in the use of [navigable] waters, the possession by private individuals of lands under them could not be permitted except by license of the crown, which could alone exercise such dominion over the waters as would insure freedom in their use so far as consistent with the public interest. The doctrine is founded upon the necessity of preserving to the public the use of navigable waters from private interruption and encroachment.[48]

The Court compared the public trust doctrine to the general police power held by the states. It concluded that while the state may delegate to

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47. *Id.* at 436.
48. *Id.*

and allow private interests to use public resources in a manner that the state determines to enhance the public interest protected, so long as it does not substantially impair that or the public trust resource, it could never permanently delegate away such power and would always retain a right to regulate the use of the water as needed to serve the public interest. It explained the nature of the state's title in water and submerged lands as follows:

> A grant of all the lands under the navigable waters of a state has never been adjudged to be within the legislative power; and any attempted grant of the kind would be held, if not absolutely void on its face, as subject to revocation. *The state can no more abdicate its trust over property in which the whole people are interested, like navigable waters and soils under them, so as to leave them entirely under the use and control of private parties . . . than it can abdicate its police powers in the administration of government and the preservation of the peace . . . So with trusts connected with public property, or property of a special character, like lands under navigable waters; they cannot be placed entirely beyond the direction and control of the state.*[49]

The public trust doctrine has continued to grow and evolve since *Illinois Central* was decided. Although different states, and different legal commentators and historians, have given the doctrine different slants, the United States Supreme Court has continued to consistently affirm that *Illinois Central* and the public trust doctrine are essential and foundational components of United States law, explaining recently that it is "the 'settled law of this country' that the lands under navigable freshwater lakes and rivers were within the public trust given the new States upon their entry into the Union."[50] The essential tenets of the public trust doctrine articulated in *Illinois Central* remain unchanged, and foundational principles of the doctrine are applied in most every state: the Great Lakes, and other navigable waters, are held in trust by the state for the benefit of the public. Although the state's determination of what serves the public interest may vary over time, and use of the property may even be delegated to private parties to the extent it enhances or does not substantially impair the public interest, the state's duty to hold these waters in the interest of the public cannot be abdicated and such waters can never be "placed entirely beyond

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49. *Id.* at 453–54.
50. Phillips Petroleum Co. v. Mississippi, 484 U.S. 469, 479 (1988).

the direction and control of the state" to protect and provide for the public interest the free use of navigable waters.[51]

Accordingly, *Illinois Central* is viewed as affirming three foundational principles of the public trust: (1) The public trust can never be alienated or subordinated unless it has the express "assent of the State;"[52] (2) the "assent of the state" is unlawful where the legislature transfers public trust resources to a private person for non-public purposes; or (3) a transfer or authorized use can not impair the public's interest in the trust or its trust resources.[53] In addition, the Court left the door open that other public resources of a "special character, like lands under navigable waters" might be protected by the public trust doctrine.[54] Finally, the Court made it clear that a state would be held accountable for abdicating its duty to protect the public trust from such alienation or impairment.[55] Professor Joseph Sax describes the principles this way:

> First, the property subject to the public trust must not only be used for a public purpose, but it must be held available for use by the general public; second, the property may not be sold, even for a fair-cash equivalent; third, the property [water or public trust resource] must be maintained for particular types of uses.[56]

These principles have remained constant and flourished over time in the states, including all of the Great Lakes states.

ii. The Public Trust Doctrine in Great Lakes States

Today, virtually all eight Great Lakes states have adopted the public trust doctrine for the Great Lakes and navigable lakes and streams.[57] The

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51. *Illinois Central*, 146 U.S. at 454.
52. *Id.* at 437, 452–53; Sax, *supra* note 15.
53. *Illinois Central* at 452–53.
54. *Id.* at 454.
55. *Id.* at 453 (declaring that "the trust devolving upon the state for the public, and which can only be discharged by the management and control of property in which the public has an interest, cannot be relinquished by a transfer of the property. The control of the state for the purposes of the trust can never be lost, except as to such parcels as are used in promoting the interests of the public therein, or can be disposed of without any substantial impairment of the public interest in the lands and waters remaining.").
56. Sax, *supra* note 15, at 477. adsfa
57. This is not surprising, since five of the states were carved out of the Northwest Ordinance of 1787, which declared "[t]he navigable waters leading into the Mississippi and St. Lawrence . . . shall be common highways and forever free," *See* Transcript of Northwest Ordinance (1787), 1 Stat. 41, 444 Stat. 1851 (The Avalon Project at Yale Law School, trans.), *available at* http://www.ourdocuments.gov/doc.php?flash=true&doc=8&page=transcript [hereinafter Northwest

constitutions or laws of several of the states have recognized a public trust in navigable waters or public natural resources. The following is a state-by-state summary of each of the Great Lakes states' statutory, constitutional, and/or jurisprudential recognition of the public trust doctrine.[58]

Illinois

As described above, the 1892 decision by the United States Supreme Court in *Illinois Central* is widely seen as having adapted the public trust principles long-established in English common law to the United States, forming a baseline for state-based recognition of the public trust doctrine throughout the country, including Illinois. Illinois later amended its constitution to include the following public trust declarations in Sections 1 and 2 of Article XI :

> The public policy of the State and the duty of each person is to provide and maintain a healthful environment for the benefit of this and future generations.[59]
>
> Each person has the right to a healthful environment. Each person may enforce this right against any party, governmental or private, through appropriate legal proceedings subject to reasonable limitation and regulation as the General Assembly may provide by law.[60]

The Illinois Supreme Court later recognized in *People ex rel Scott v. Chicago Park District*, that these constitutional amendments clearly and unambiguously connect the public trust doctrine to public health and

Ordinance]. For an extensive review of the extent of state ownership and the public trust in the waters, bottomlands, and foreshores of the Great Lakes, see Frey & Mutz, *supra* note 23.

58. As ably described by Professor Robin Kundis Craig, there is a "richness and complexity of public trust philosophies" that is revealed upon review of the application of the public trust doctrine on a state by state basis. *See* Robin Kundis Craig, *A Comparative Guide to the Eastern Public Trust Doctrines: Classifications of States, Property Rights, and State Summaries*, 16 Penn. St. Envtl. L. Rev. 1, 3 (2008) (describing a "richness and complexity of public trust philosophies" is revealed upon review of the application of the Public Trust Doctrine on a state-by-state basis); *see* ALEXANDRA B. KLASS & LING-YEE HUANG, RESTORING THE TRUST: WATER RESOURCES AND THE PUBLIC TRUST, Ctr. for Progressive Reform, White Paper No. 908 1, 5, 12–13 (Sept. 2009), *available at* http://www.progressivereform.org/articles/CPR_Public_Trust_Doctrine_Manual.pdf (analyzing the application of the public trust doctrine across the country, including case studies from multiple states). For other brief synopses of public trust law in the states, see Henquinet & Dobson, *supra* note 20, at 347.

59. ILL. CONST. art. XI, § 1.

60. ILL. CONST. art. XI, § 2.

environmental concerns.[61] That case is also noteworthy for the Illinois Supreme Court's willingness to build upon the ruling in *Illinois Central* by adopting a view that the public uses protected by the public trust doctrine may evolve over time, and that the doctrine does not permit a transfer of control of public trust resources for primarily private purposes.[62] Illinois has also applied the public trust doctrine to parks and conservation areas,[63] and has declared an attempted grant of submerged lands by the state to be a violation of the public trust where the project has a solely private purpose.[64] As to the public trust protection of the Great Lakes specifically, the Illinois Supreme Court sets the high-water mark of Lake Michigan for demarcation of the line between public and private ownership.[65] The state has also enacted numerous statutes recognizing the public trust doctrine,[66] as well as others which regulate the use of public trust resources such as the Great Lakes.[67]

Indiana

In 1918, the Indiana Court of Appeals held that the land within Indiana's borders beneath Lake Michigan "is held by the state in trust for the people as a whole, and the property so held in trust is common property of all."[68] Then in 1950, the Indiana Supreme Court recognized that the lands underlying navigable waters are protected by the public trust, stating:

> [i]t is settled law in this country that lands underlying navigable waters within a state belong to the state in its sovereign capacity and may be

61. People *ex rel.* Scott v. Chi. Park Dist, 360 N.E.2d 773, 780 (Ill. 1976).

62. *Id.*

63. *See generally* Paepcke v. Pub. Bldg. Comm'n of Chicago, 263 N.E.2d 11 (Ill. 1970) (dismissing Plaintiff's complaint because the legislation was made "in good faith and for the public good" and encroached on public lands consistent with the public trust doctrine); *but cf.* Timothy Christian Schools v. Vill. of Western Springs, 675 N.E.2d 168, 174 (Ill. App. Ct. 1996) (holding the public trust doctrine does not apply because the land in question is an empty lot for drainage and rather than protected public lands such as "parks, conservation areas, [or] mostly submerged land under Lake Michigan or the Chicago River").

64. *Scott*, 360 N.E.2d at 781.

65. Revell v. People, 52 N.E. 1052, 1058, 1060 (Ill. 1898).

66. These Illinois statutes recognizing the public trust doctrine include: the Submerged Lands Act, 5 ILL. COMP. STAT. ANN. §§ 605/1 and 605/2 (West 2005); and the Rivers, Lakes and Streams Act, 615 ILL. COMP. STAT. ANN. §§ 5/4.9–5/30 (West 2005).

67. Illinois statutes regulating public trust resources include: the Level of Lake Michigan Act, 615 ILL. COMP. STAT. ANN. § 50 (West 2007); the Navigable Waterways Obstruction Act, 615 ILL. COMP. STAT. ANN. §§ 20/1 to 20/5 (West 2007); the Illinois Waterways Act, 615 ILL. COMP. STAT. ANN. §§ 10/0.01 to 10/28 (West 2007); the Water Use Act of 1983, 525 ILL. COMP. STAT. ANN. §§ 45/1 to 45/7 (West 2007); the Lincoln Park Submerged Lands Act, 70 ILL. COMP. STAT. ANN. §§ 1575/0.01 to 1575/2 (West 2007); and the Chicago Submerged Lands Act, 70 ILL. COMP. STAT. ANN. §§ 1550/0.01 to 1555/1.1 (West 2007).

68. Lake Sand Co. v. State, 120 N.E. 714, 715 (Ind. Ct. App. 1918).

> used and disposed of as it may elect, subject to the paramount power of Congress to control such waters for the purposes of navigation in commerce among the states and with foreign nations.[69]

In 1955 the Indiana Legislature adopted the public trust into law, stating that the waters "in a natural stream, natural lake, or other natural body of water in Indiana that may be applied to a useful or beneficial purpose is declared to be a natural resource and public water of Indiana."[70]

By statute, Indiana has reserved to the public "a vested right in . . . (A) [t]he preservation, protection, and enjoyment of all the public freshwater lakes of Indiana in their present state; and (B) [t]he use of the public freshwater lakes for recreational purposes."[71] Indiana has also declared that "the natural resources and scenic beauty of Indiana are a public right,"[72] that the state has the capability to enforce these rights, and that the state "holds and controls all public freshwater lakes in trust for the use of all of the citizens of Indiana for recreational purposes."[73] Under Indiana statute, the public's right of access typically begins at the ordinary high water mark.[74] In Lake Michigan, the ordinary high water mark is statutorily defined to fall at an elevation of 581.5 feet.[75] However, in other inland water bodies the high water mark is defined using a "physical characteristics" test. The mark is defined as "a clear and natural line impressed on the bank, shelving, changes in character of the soil, the destruction of terrestrial vegetation, [and] the presence of litter or debris."[76]

For freshwater lakes, courts in Indiana have recognized that these statutes make no distinction between navigable and non-navigable lakes and therefore the public trust extends to all such public freshwater lakes.[77] A variety of uses are protected in public waters, including navigation, recreation, fishing, and sand and gravel mining (unless otherwise regulated),[78] and the state holds title to any lake that is considered a public lake.[79]

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69. State *ex rel.* Ind. Dept. of Conservation v. Kivett, 95 N.E.2d 145, 148 (Ind. 1950) (quoting United States v. Holt State Bank, 270 U.S. 49, 54 (1926)).

70. IND. CODE § 14-25-1(2) (1995).

71. IND. CODE § 14-26-2-5(c) (2003).

72. *Id.* at (c)(1).

73. *Id.* at (d)(2).

74. *Ordinary High Watermarks,* INDIANA DNR, http://www.in.gov/dnr/water/3658.htm (last visited Oct. 31, 2013).

75. 312 IND. ADMIN. CODE 1-1-26(2) (1995).

76. *Id.* at (1)(A)–(E).

77. Bath v. Courts, 459 N.E.2d 72, 75 (Ind. Ct. App. 1984).

78. *See* Lake Sand Co. v. State, 120 N.E. 714, 715–16 (Ind. Ct. App. 1918) (citing several cases protecting these recreational uses under the public trust doctrine).

79. Parkinson v. McCue, 831 N.E.2d 118, 130 (Ind. Ct. App. 2005).

However, Indiana's freshwater lake law does not apply to Lake Michigan.[80] Thus, the common law public trust doctrine, as well as the public waters law, can be looked at for determining the scope of public trust uses protected by the public trust in Lake Michigan. While the issue has not been decided directly, several courts have recognized that the land between the waters' edge and the ordinary high water mark is owned by the state and subject to the public trust doctrine.[81] The Indiana Supreme Court has stated that the public's right of navigation and protected public trust uses are considered superior to the rights of riparian landowners,[82] unless a waterway is considered non-navigable. In non-navigable waters, rights of use are generally limited to the abutting riparian landowner.[83]

Michigan

The Michigan Constitution does not explicitly recognize the public trust doctrine, but, as stated by the Michigan Court of Appeals, "[t]he importance of this trust is recognized by the People of Michigan in our Constitution,"[84] in the following constitutional provision: "the conservation and development of the natural resources of the State are hereby declared to be of paramount public concern in the interest of the health, safety and general welfare of the people."[85]

The state also has a number of statutes recognizing the public trust doctrine, including this provision of Michigan's Natural Resources and Environmental Protection Act relating to Great Lakes preservation:

> The waters of the state are valuable public natural resources held in trust by the state, and the state has a duty as trustee to manage its waters effectively for the use and enjoyment of present and future residents and for the protection of the environment.[86]

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80. IND. CODE § 14-26-2-5(D) (2003).

81. Lake Sand Co. v. State, 120 N.E. 714, 715 (Ind. Ct. App. 1918); Garner v. Michigan City, 453 F.Supp 33, 35 (N.D. Ind. 1978); United States v. Carstens, 2013 U.S. Dist. LEXIS 169079 (N.D. Ind. 2013); LBLHA, LLC v. Town of Long Beach, Ind., No. 46C01-1212-PL-1941, slip op at 5–6 (Laporte Cnty. Cir. Ct. Dec. 26, 2013)(dismissing the recent claim by private landowner plaintiffs claim to ownership below the ordinary high water mark to the waters' edge of Lake Michigan).

82. Bissell Chilled Plow Works v. South Bend Mfg. Co., 111 N.E. 932, 939 (Ind. Ct. App. 1916).

83. IND. NAT. RES. COMM'N, INFORMATION BULLETIN NO. 41 (SECOND AMENDMENT), THE PUBLIC TRUST DOCTRINE ON NAVIGABLE WATERS AND PUBLIC FRESHWATER LAKES AND THE LAKE MANAGEMENT WORK GROUPS, DIN: 20111012-IR-312110582NRA, at 1 (Oct. 1, 2011).

84. People *ex rel.* MacMullan v. Babcock, 196 N.W.2d 489, 497 (Mich. Ct. App. 1972).

85. MICH. CONST. art. IV, § 52.

86. MICH. COMP. LAWS § 324.32702(1)(c)); *see, e.g.*, the Great Lakes Submerged Lands Act, MICH. COMP. LAWS § 324.32502 (1995); Michigan Environmental Protection Act, MICH. COMP. LAWS §§324.1701 to 324.1705 (1995); the Inland Lakes and Streams Act, MICH. COMP. LAWS

As with several other Great Lakes states, Michigan follows the public trust principles set forth in *Illinois Central*.[87] Michigan's judicial recognition and implementation of the public trust doctrine, however, actually pre-dates *Illinois Central*, dating back to early decisions such as the Michigan Supreme Court's 1853 opinion in *Moore v. Sanborne*, which both recognized that the original public trust doctrine from English common law applied in the state, and that the true scope of the public trust doctrine is broader based on its dynamic nature and changing public needs.[88] The state supreme court has also recognized the state's "duty and responsibility as trustee" to protect public trust resources.[89] For example, in *Obrecht v. National Gypsum Co.*, the court prohibited leasing of public trust bottomlands and waters of Lake Huron for a private commercial dock facility absent due consideration and a recorded determination that the project promoted a public purpose and did not impair public trust and uses.[90]

Michigan presumes the substantial value of the public trust resource(s) at issue, and therefore establishes that the proponent must meet a burden of proof which requires a showing that the public trust resource has no public value and that it will not be impaired.[91] The state supreme court has also rejected a *de minimis* defense to impairment of public trust resources, ruling that the precedent of "nibbling effects" of impairment of public trust waters or uses violated the public trust.[92]

In *Glass v. Goeckel*, the court recognized the state's responsibility "to protect and preserve the waters of the Great Lakes and the lands beneath them for the public," including for public uses such as fishing, hunting, boating ("for commerce or pleasure"), shoreline walks below the high-water mark, cutting ice, gathering of shellfish and seaweed, and bathing.[93] Michigan has its own rule marking the line between upland private property and the state's public trust bottomlands and shore. The decision of the

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§ 324.30106 (1995); and "Part 341" regulations pertaining to irrigation districts. MICH. COMP. LAWS § 324.34105 (West 1995).

87. *See* Obrecht v. Nat'l Gypsum Co., 105 N.W.2d 143 (Mich. 1960) (citing *Illinois Central*, 146 U.S. at 387).

88. Moore v. Sanborne, 2 Mich. 519, 525 (1853) (holding that "[t]he servitude of the public interest depends rather upon the purpose for which the public requires the use of its streams, than upon any particular mode of use. . . the public claim to a right of passage along its streams must depend upon their capacity for the use to which they can be made subservient").

89. *Obrecht*, 105 N.W.2d at 149.

90. *Id.* at 151.

91. Gross Ile Twp. v. Dunbar & Sullivan Dredging Co., 167 N.W.2d 311, 316 (Mich. Ct. App. 1969).

92. People v. Broedell, 112 N.W.2d 517, 518–19 (Mich. 1961).

93. Glass v. Goeckel, 703 N.W.2d 58, 64–65, 73–74 (Mich. 2005).

Michigan Supreme Court in *Glass v. Goeckel* takes the "'ordinary high water mark' from the common law of the sea and applies it to our Great Lakes."[94] For other navigable waters, such as inland lakes and streams, Michigan courts have followed a "log floating" test to define the reach of public trust doctrine for inland lakes and streams.[95] Once a lake or stream is navigable, the public enjoys reasonable use of the entire surface of the waters for boating, fishing, swimming and other recreation.[96] The public trust doctrine also includes fish and game and their habitat.[97]

Minnesota

Article II, Section 2 of the Minnesota Constitution states:

> The state of Minnesota has concurrent jurisdiction on the Mississippi and on all other rivers and waters forming a common boundary with any other state or states. Navigable waters leading into the same, shall be common highways and forever free to citizens of the United States without any tax, duty, impost or toll therefore.[98]

The Minnesota Supreme Court has recognized the public trust doctrine in its navigable waters, including Lake Superior.[99] The Minnesota Court has also declared that "[a] riparian owner's rights are qualified, restricted, and subordinate to the paramount rights of the public,"[100] which include such uses as "commercial navigation, the drawing of water for various private and public purposes, recreational activity, and similar water-

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94. *Id.* at 71 (quoting Diana Shooting Club v. Husting, 145 N.W. 816, 820 (Wis. 1914)) (ruling definitively that in Michigan, private title to land lakeward of the high water mark is subject to the public trust. The court defines the high water mark as "the point on the bank or shore up to which the presence and action of water is so continuous as to leave a distinct mark").

95. Collins v. Gerhardt, 211 N.W. 115,116–17 (Mich. 1926); Bott v. Mich. Dep't of Natural Res., 327 N.W.2d 838, 841, 844 (Mich. 1982). The "log floating" test is used to determine navigability. According to the test, waterways capable of floating logs or timber are defined as navigable.

96. Higgins Lake Prop. Owners Ass'n v. Gerrish Twp., 662 N.W.2d 387, 402 (Mich. Ct. App. 2003).

97. People v. Soule, 213 N.W. 195, 197 (Mich. 1927); Friends of Crystal River v. Kuras Prop., 554 N.W.2d 328, 335 (Mich. Ct. App. 1996), *rev'd on other grounds*, 577 N.W.2d 684 (Mich. 1998).

98. MINN. CONST. art. II, § 2. The provisions is nearly identical to the Northwest Ordinance of 1787. Northwest Ordinance, *supra* note 57. The state also has a permanent, constitutionally established "environment and natural resources trust fund" to be used "for the public purpose of protection, conservation, preservation, and enhancement of the state's air, water, land, fish, wildlife, and other natural resources. MINN. CONST. art. XI, § 14.

99. Nelson v. De Long, 7 N.W.2d 342, 346 (Minn. 1942).

100. *Id.*

connected uses."[101] Once established, the state holds title "in a sovereign capacity, as trustee for the public good, and not in a proprietary sense."[102]

Chapter 103G of Minnesota's statutes declares that the

> ownership of the bed and the land under the waters of all rivers in the state that are navigable for commercial purposes belong to the state in fee simple, subject only to the regulations made by the United States with regard to the public navigation and commerce and the lawful use by the public while on the waters."[103] Other statutes subject public waters to regulation and govern their use and preservation.[104]

In addition, Minnesota declares that its air, water, and natural resources and "the public trust" in those resources are protected from "pollution, impairment or destruction."[105]

New York

While New York does not have a constitutional public trust declaration, the state's Environmental Conservation Law declares:

> All the waters of the state are valuable public natural resources held in trust by this state, and this state has a duty as trustee to manage

101. State v. Slotness, 185 N.W.2d 530, 532 (Minn. 1971). Minnesota utilizes the federal "navigable in fact" test for determining the existence of public rights in all waters, and requires that commercial use of such waters be established as of the admission of the state into the Union on May 11, 1858; State v. Adams Corp., 89 N.W.2d 661, 665 (Minn. 1957).

102. Pratt v. State, Dep't of Natural Res., 309 N.W.2d 767, 771 (Minn. 1981) (citing Lamprey v. State, 53 N.W. 1139, 1143 (Minn. 1893)).

103. MINN. STAT. § 103G.711 (2007). Another portion of that statute also includes a thorough, eleven-point definition of "public waters" that includes items such as "waters of the state that have been finally determined to be public waters or navigable waters by a court of competent jurisdiction," "water basins assigned a shoreland management classification," "water basins where the state of Minnesota or the federal government holds title to any of the beds or shores, unless the owner declares that the water is not necessary for the purposes of the public ownership," and "water basins where there is a publicly owned and controlled access that is intended to provide for public access to the water basin," among others. MINN. STAT. § 103G.005(15) (2007).

104. Minnesota statutes regulating public waters also include: Chapter 103A "Water Policy and Information" (MINN. STAT. § 103A.001 to 103A.43 (West 2007) (Chapter 103A "Water Policy and Information")); MINN. STAT. § 103B.3361 to 103B.355 (2007) (Chapter 103B "Local Water Resources Protection and Management Program"); MINN. STAT. §§ 103F.201 to 103F.227 (2007) (Chapter 103F "Shoreland Development"); and MINN. STAT. §§ 103F.801 to 103F.805 (2007) ("Lake Preservation and Protection"). Minnesota has enacted a citizen suit provision that grants the right of a person to bring a lawsuit to protect the air, water and natural resources from pollution or impairment. MINN. STAT. § 116.B.03 (1971).

105. MINN. STAT. § 116.B.03 (2009).

> its waters effectively for the use and enjoyment of present and future residents and for the protection of the environment.[106]

Similarly, other sections of New York's Environmental Conservation, Navigation, and Public Lands statutes reference the public trust doctrine and the public's use rights in navigable waters.[107]

As stated in *Adirondack League Club Inc. v. Sierra Club*, "[p]ursuant to the public trust doctrine, the public right of navigation in navigable waters supersedes [a riparian's] private right in the land under the water."[108] New York courts have found violations of the public trust doctrine in instances involving "interference with the public's right to fish or with the public's right of access for navigation, or [where] the land under the stream has been improperly alienated."[109] Furthermore, courts have recognized a special state duty "to safeguard wetlands within the State," based on the public trust doctrine and the state's Freshwater Wetlands Act.[110] While New York applies the public trust doctrine to parkland,[111] it has not extended the doctrine to non-navigable waterways.[112] For a stream to be owned exclusively by a riparian owner, it "must be too small to be navigable, in fact."[113]

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106. N.Y. ENVTL. CONSERVATION LAW § 15-1601 (McKinney 2011).

107. New York statutory references to the public trust doctrine and public trust resources can be found in the following provisions of state law: N.Y. ENVTL. CONSERVATION LAW art. 13 (McKinney 2011) ("Marine and Coastal Resources"); N.Y. ENVTL. CONSERVATION LAW art. 15 (McKinney 2011) ("Water Resources"); ("Waters impounded by dams constructed for power purposes impressed with a public interest"), N.Y. ENVTL. CONSERVATION LAW § 24-0103 (McKinney 2011) ("Freshwater Wetlands"); N.Y. ENVTL. CONSERVATION LAW ART. 15 § 1713 (McKinney 2011); N.Y. PUB. LANDS LAW § 75 (McKinney 2011) ("Grants of Lands Under Water"); N.Y. NAV. LAW § 30(2–7) (McKinney 2011) ("Navigable Waters of the State").

108. Adirondack League Club Inc. v. Sierra Club, 615 N.Y.S.2d 788, 792 (N.Y. 1994).

109. Evans v. Johnstown, 410 N.Y.S.2d 199, 207 (N.Y. 1978).

110. Matter of Bisignano v. Dep't of Envtl. Conservation, 505 N.Y.S.2d 555, 555 (N.Y. 1986) (citing Flacke v. Freshwater Wetlands Appeals Bd., 428 N.E.2d 380 (N.Y. 1981)).

111. Brooklyn Bridge Park Legal Defense Fund, Inc., v. N.Y. St. Urban Dev. Corp., 825 N.Y.S.2d 347, 354–55 (N.Y. 2006).

112. *Evans*, 410 N.Y.S.2d at 207. It should also be noted that just because a stream is not navigable for purposes of denying public access over the private bed of a stream, does not mean the water itself is not public to the extent water is capable of ownership and subject to the government's duty to protect public trust waters, fish, the ecosystem from harm. Collins v. Gerhardt, 211 N.W. 115 (Mich. 1926); *In re* Water Use Applications *infra* 9 P.3d 409 (Haw. 2000).

113. Fulton Light, Heat & Power v. New York, 94 N.E. 199, 202 (N.Y. 1911). Although New York considers the tidal, ebb-and-flow rule for title purposes to be "discredited," it was begrudgingly accepted in People v. System Properties, 120 N.Y.S.2d 269, 280 (N.Y. App. Div. 1953), where the court declared, "[v]estigal as the rule may be, it is a settled rule of property law and we must respect it as such." However, both the Mohawk River ("a fresh water stream") and the Hudson River ("above the ebb and flow of the tide") are exceptions to this rule and are considered to be publicly owned. Fulton Light, Heat & Power, 94 N.E. at 202–03.

Ohio

The Supreme Court of Ohio, building on *Illinois Central*, declared in 1979:

> [i]t is clear… that the trust doctrine of state control over the submerged lands of Lake Erie and its bays from the beneficial ownership of the public, which originated in England and has been reinforced in this country by judicial decision, has existed in this state since Ohio was admitted to the Union in 1803.[114]

Although, Ohio has no constitutional public trust declaration, its Coastal Management statute declares that the public trust doctrine applies to Lake Erie:

> It is hereby declared that the waters of Lake Erie consisting of the territory within the boundaries of the state, extending from the southerly shore of Lake Erie to the international boundary line between the United States and Canada, together with the soil beneath and their contents, do now belong and have always, since the organization of the state of Ohio, belonged to the state as proprietor in trust for the people of the state, for the public uses to which they may be adapted, subject to the powers of the United States government, to the public rights of navigation, water commerce, and fishery, and to the property rights of littoral owners, including the right to make reasonable use of the waters in front of or flowing past their lands.[115]

Protected public uses include "all legitimate uses, be they commercial, transportational, or recreational."[116] Over time, the Ohio courts have applied a "gradually changing concept of navigability," such that a capacity for use by nearly any type of watercraft would be demonstrative of "the availability of the stream for the simpler types of commercial navigation," and not only in its natural condition, but also "after the making of reasonable improvements," even if not "actually completed or even

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114. Thomas v. Sanders, 413 N.E.2d 1224, 1228 (Ohio Ct. App. 1979).

115. OHIO REV. CODE ANN. § 1506.10 (West 1989) (recognized in *Beach Cliff Board of Trustees v. Ferchill*, 2003 WL 21027604, at *2 (Ohio Ct. App., 8th Dist., 2003) ("Codified now at R.C. Chapter 1506, the 'public trust' doctrine delineates the property rights of those whose property abuts a lake, otherwise known as littoral owners.")).

116. State *ex rel*. Brown v. Newport Concrete Co., 336 N.E.2d 453, 458 (Ohio Ct. App. 1975).

authorized."[117] Most recently, in the matter of *State ex rel. Merrill v. Ohio Dep't of Natural Resources*,[118] the Ohio Supreme Court declared that the "boundary of the public trust does not . . . change from moment to moment as the water rises and falls; rather, it is at the location where the water usually stands when free from disturbing causes."[119]

Pennsylvania

Article 1, Section 27 of Pennsylvania's Constitution includes a clear public trust declaration:

> The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania's public natural resources are the common property of all of the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all people.[120]

The Pennsylvania Supreme Court has stated that this provision "installs the common law public trust doctrine as a constitutional right to environmental protection susceptible to enforcement by an action in equity."[121] This provision is not self-executing,[122] but references to the public trust doctrine may be found in various Pennsylvania statutes as well, including the declaration that it is "the purpose of this section [related to "Water Resources Planning"] to provide additional and cumulative remedies to protect the public interest in the water resources of this Commonwealth."[123]

117. Coleman v. Schaeffer, 126 N.E.2d 444, 445–46 (Ohio 1955). The Supreme Court of Ohio declared long ago that "it may be regarded as settled in this state that all navigable rivers are public highways," applying the "navigable in fact" rule to such rivers relative to their "capacity of being used by the public for purposes of transportation and commerce." Hickok v. Hine, 23 Ohio St. 523, 527 (Ohio 1872).

118. State *ex rel.* Merrill v. Ohio Dep't of Natural Res., 955 N.E.2d 935 (Ohio 2011).

119. *Id.* at 949 (citing Sloan v. Biemiller, 34 Ohio St. 492 (Ohio 1878)).

120. PA. CONST. art. I, § 2; *see also*, Payne v. Kassab, 312 A.2d 86, 93 (Pa. Commw. 1973).

121. Commonwealth by Shapp v. Nat'l Gettysburg Battlefield Tower, Inc., 311 A.2d 588, 596 (Pa. 1973) (Jones, B., dissenting).

122. *Id.* at 594–95.

123. 27 PA. CONS. STAT. ANN. §§ 3135(b) (West 2011). Other such references can be found in the following sections: "Water Resources Planning," 27 PA. CONS. STAT. ANN. §§ 3101–3104 (West 2011), *et seq.*; "Water Rights," 32 PA. CONS. STAT. ANN. §§ 631–641 (West 2011); and "Encroachments in Streams," 32 PA. CONS. STAT. ANN. § 675 (West 2011).

As in other states, courts held that the primary rights protected by the public trust doctrine were related to navigation and fishing.[124] However, some case law has recognized other rights in public trust waters, including gathering stones, gravel, and sand, taking fish, ice, or driftwood, and bathing (with certain limitations).[125] Under Pennsylvania law, "[i]f a body of water is navigable, it is publicly owned and may only be regulated by the Commonwealth; ownership of the land beneath would not afford any right superior to that of the public to use the waterway."[126] The application of the public trust in such waterways therefore results in use rights that extend to the high-water mark,[127] although recreational or tourism use is not sufficient for purposes of attempting to establish navigability.[128] It is also the law of the Commonwealth that "[r]ivers are not determined to be navigable on a piecemeal basis. It is clear that once a river is held to be navigable, its entire length is encompassed."[129]

Wisconsin

In *Hilton ex rel. Pages Homeowners' Assoc. v. Dep't of Natural Resources*,[130] the Supreme Court of Wisconsin recognized that the public trust doctrine in the state is "rooted in" the following provision of the state Constitution:

> The state shall have concurrent jurisdiction on all rivers and lakes bordering on this state so far as such rivers or lakes shall form a common boundary to the state and any other state or territory now or hereafter to be formed, and bounded by the same; and the river Mississippi and the navigable waters leading into the Mississippi and St. Lawrence, and the carrying places between the same, shall

124. *See generally* Lehigh Falls Fishing Club v. Andrejewski, 735 A.2d 718 (Pa. Super. Ct. 1999) (discussing navigable waterways as being held in trust for the public to use and the right of fishing as open to the public).

125. *See, e.g.*, Shrunk v. Schuylkill Navigation Co., 1826 WL 2218 (Pa. 1826) (holding that fish cannot be entirely owned by an owner of the banks of a lake); Yoffee v. Pa. Power & Light Co., 123 A.2d 636 (Pa. 1956) (holding that air space is generally viewed to be a public property apart from certain federal and state regulations); Hunt v. Graham, 15 Pa. Super. 42 (Pa. Super. Ct. 1900) (holding that bathing is a public right though not absolute); and Solliday v. Johnson, 38 Pa. 380 (Pa. 1861) (holding that gravel and stone gathering is a public right).

126. Mountain Prop. Inc. v. Tyler Hill Realty Corp., 767 A.2d 1096, 1099 (Pa. Super. Ct. 2001) (citing Philadelphia v. Pennsylvania Sugar Co., 36 A.2d 653 (Pa. 1944); Pennsylvania Power v. Maritime Mgmt., 693 A2d 592, 594 (Pa. Super. Ct. 1997)).

127. Fulmer v. Williams, 15 A. 726, 728 (Pa. 1888).

128. *Mountain Prop. Inc.*, 767 A.2d at 1100.

129. *Lehigh Falls Fishing Club*, 735 A.2d 722.

130. Hilton ex rel. Pages Homeowners' Ass'n v. Dep't of Natural Res., 717 N.W.2d 166, 173 (Wis. 2006).

> be common highways and forever free, as well to the inhabitants of the state as to the citizens of the United States, without any tax, impost or duty therefore.[131]

Wisconsin's public trust doctrine is well developed and protects a broad array of uses of public trust waters, including navigation, fishing, swimming, enjoyment of scenic beauty, hunting, recreation, "any other lawful purpose," and the right to "preserve natural resources such as wetlands."[132] The courts have developed a number of core public trust standards, including the principle that the state is prohibited from making a substantial grant of a lake bed for a purely private purpose, and the state cannot physically alter a waterbody in a way that will destroy its character.[133] The public is even held to have an "interest in navigable waters, including promoting healthful water conditions conducive to protecting aquatic life and fish,"[134] while the state's duty under the trust doctrine has been held to include "a duty to eradicate the present pollution and to prevent further pollution in its navigable waters."[135] The Wisconsin's Supreme Court recently ruled that the state's public trust doctrine imposes an affirmative duty upon the Department of Natural Resources to "consider whether a proposed high capacity [groundwater] well may harm waters of the state."[136]

The public trust doctrine has been determined to apply "to land under the stream of the navigable water so long as . . . [it] constitutes part of the bed of the stream,"[137] but this is not applicable where an artificial lake or body of water is concerned,[138] unless it involves "artificial waters that are directly and inseparably connected with natural, navigable waters."[139] The courts have also recognized that "the state 'holds the beds underlying navigable waters in trust for all of its citizens,'" and that the state's "title to submerged lands beneath natural lakes" extends "up to the ordinary high-

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131. WIS. CONST. art. IX, § 1. There is a close resemblance to the Northwest Ordinance of 1787. *See* Northwest Ordinance, *supra* note 57.

132. Just v. Marinette Cnty., 201 N.W.2d 761, 768 (Wis. 1972); *see also*, Meunch v. Pub. Serv. Comm'n, 53 N.W.2d 514, 519 (Wis. 1952); State v. Trudeau, 408 N.W.2d 337, 343 (Wis. 1987).

133. *See, e.g.*, State v. Pub. Serv. Comm'n, 81 N.W.2d 71, 74 (Wis. 1957) (citing Priewe v. Wis. State Land & Imp. Co., 67 N.W. 918; In re Crawford Cnty. Levee & Drainage Dist., 196 N.W. 874); *see* Scanlan, *supra* note 21, at 142.

134. FAS, LLC v. Bass Lake, 733 N.W.2d 287, 295 (Wis. 2007).

135. *Just*, 201 N.W.2d at 768.

136. Lake Beulah Mgmt. Dist. v. St. Dep't Natural Res., 799 N.W.2d 73, 76 (Wis. 2011).

137. *Meunch*, 53 N.W.2d at 518.

138. Mayer v. Grueber 138 N.W.2d 197, 203 (Wis. 1965).

139. Klingeisen v. St. Dep't Natural Res., 472 N.W.2d 603, 606 (Wis. Ct. App. 1991).

water mark."[140] A waterbody is determined to be navigable if the water body is "capable of floating any boat, skiff, or canoe, of the shallowest draft used for recreational purposes."[141] The state also has a number of statutory provisions recognizing the importance of the public trust doctrine, and governing its application with respect to public trust resources in Wisconsin.[142]

C. The Right to Public Use of Navigable Waters in Canada

The principles of public trust have been historically recognized in Canada, and in recent years there has been growing momentum calling for the express adoption of the doctrine.

The *jus publicum* or paramount right of the public to use navigable waters for navigation, boating, and fishing has been recognized by Canadian common law since the Constitution Act of 1867.[143] While the right of public use and protection of these waters has not been expressly labeled a "public trust" as it has in the United States, in the late 1800s and early 1900s Canadian courts recognized a paramount public right to use navigable waters and imposed a "trust for the public uses which nature intended of them."[144] Canadian court decisions around the time of the Boundary Waters Treaty and the U.S. Supreme Court's 1892 decision in *Illinois Central* recognized that the public's right to use navigable waters was protected by a legally enforceable trust:

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140. *In re* Annexation of Smith Prop., 634 N.W.2d 840, 843 (Wis. Ct. App. 2001) (citing State v. Trudeau, 408 N.W.2d 337, 337; *Meunch*, 53 N.W.2d at 517; R.W. Docks & Slips v. State 628 N.W.2d 781 (Wis. 2001)).

141. *Meunch*, 53 N.W.2d at 518.

142. The following statutes recognize and govern the application of the public trust doctrine in Wisconsin: WIS. STAT. ANN. §§ 30.01–30.99 (West 2011)("Navigable Waters, Harbors and Navigation"); WIS. STAT. ANN. §§ 31.06(3)(c) (West 2011) ("Regulation of Dams and Bridges Affecting Navigable Waters"); WIS. STAT. ANN. §§ 33.01–33.60 (West 2011)("Public Inland Waters"); WIS. STAT. ANN. §§ 281.11–281.35 (West 2011)("Water and Sewage"). It is this last provision, in fact, which defines "navigable waters" as follows:

> Lake Superior, Lake Michigan, all natural inland lakes within this state and all streams, ponds, sloughs, flowages and other waters within the territorial limits of this state, including the Wisconsin portion of boundary waters, which are navigable under the laws of this state.

WIS. STAT. ANN. § 281.31 (West 2011).

143. Constitution Act, 1867, 30 & 31 Vict. c. 3 (U.K.).

144. Queen v. Meyers, [1853] 3 U.C.C.P. 305, 357 (Can.); *see also* Vancouver v. Canadian Pac. Ry., [1894] 23 S.C.R. 1, 6 (Can.) (determining that cities public use of property was not subordinate to railroad companies).

> [T]he Great Lakes and the streams which are in fact navigable, and which empty into them in these provinces, must be regarded as vested in the Crown in trust for the public uses for which nature intended them—that the Crown, as the guardian of public rights, is entitled to prosecute and to cause the removal of any obstacle which obstruct the exercise of the public right and cannot by force of its prerogative curtail or grant that which it is bound to protect and preserve for public use.[145]

Indeed, the public right to use waters like the Great Lakes and their tributary streams was as much alive in Canada at the time of the signing of the Treaty as the public trust doctrine in the United States.

Although these background principles were recognized by Canadian courts, the legal framework governing water rights and evolution of public trust law differs somewhat from the American system. In Canada, the Crown owns the water.[146] Ownership and control of public water is distributed by the Constitution Act between the federal government and provinces, with some delegation of control to local governments. Under the Constitution Act, Provinces have power over local works, property, natural resources, and electrical energy production.[147] The federal government has ownership and control for purposes of navigation and shipping, sea coast and fisheries, federal works, canals and harbors, and lake improvements.[148] Significantly, the Constitution Act does not authorize any private ownership of water. In Ontario, navigable waters are determined by a "navigability" test that consists of several factors which indicate both flexibility and a range of uses such as fishing, small watercraft use, and recreation in addition to navigation.[149] Private rights to use of water are generally gained by a license or grant for a specific limited purpose consistent with the right of public use, except for common law rights to use a lake or stream associated with ownership of riparian property. In Quebec, the government

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145. Queen v. Meyers, 3 U.C.C.P. at 305, 357 (Can.). The Canadian Court recognizes its "guardian" responsibility, and that it cannot itself violate the limitation on its power to alienate these Great Lakes navigable waters to private persons or purposes. Guardianship implies duty and responsibility, and the limitation on alienation or interference implies a right in citizens, at least those whose use has been or is threatened with harm and would have standing. *See generally* Jackson et al., *supra* note 29.

146. Constitution Act, *supra* note 143 at art. III § 9 (stating "[t]he Executive Government and Authority of and over Canada is hereby declared to continue and be vested in the Queen.").

147. Constitution Act, *supra* note 143, at sec. 92, 109.

148. Constitution Act, *supra* note 143.

149. Canoe Ont. v. Reed, [1989] 69 O.R. 2d 494, 501 (Can.). (Ontario Supreme Court sets out seven factors to determine navigability, which in sum suggest a flexible test for navigability and recognition that public access and navigation include recreational uses [e.g. "small craft" and "fishing"]).

has enacted a "patrimoine commun" principle in its new water law that declares water a "collective resource" of "common heritage," protected by a principle l'etat guardien, making the province "custodian" of its water resources.[150]

Although Canadian courts did not historically do so, the idea of expressly adopting the public trust doctrine has received growing support in recent years. Leading water and natural resource law scholars, lawyers, policy experts and government leaders have encouraged the adoption of modern public trust principles to fulfill the government's obligation to protect the quality, flows and levels, and natural resources that make up living hydrological systems that include lakes, rivers, and other bodies of water such as groundwater.[151] John Maguire noted that public trust principles could be effective in imposing a duty on the Crown to protect and manage Canada's water and public resources.[152] Ralph Pentland, water policy expert and former co-chair of the IJC Water Studies Board, has urged Canada to more fully develop the public trust doctrine as an important principle to manage and protect water resources and the environment in the face of the complex transboundary water issues faced by the Great Lakes and North America.[153] The Polis Institute has also called for adopting public trust principles for Canada as a means of ensuring strong governance through a fiduciary duty to ensure long-term protection of water and ecosystems.[154]

The public trust doctrine and public trust principles have also started appearing in Canadian law. Recently, the Canadian Supreme Court has suggested the public trust doctrine may be worthy of exploration in cases involving public resources such as water and forests.[155] Public trust principles have also been incorporated into more recent Canadian legislation. The Yukon Territory declared the government "the trustee of the public trust" to protect the natural environment in its Environment

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150. Jackson et al., *supra* note 29.

151. BRANDES & CHRISTENSEN, *supra* note 24, at 3; Maguire, *supra* note 24; Pentland, *supra* note 24.

152. Maguire, *supra* note 24; Pentland, *supra* note 24.

153. Ralph Pentland & James Olson, *One Issue, Two Voices, Decision Time: Water Diversion Policy in the Great Lakes Basin*, Woodrow Wilson International Center for Scholars, Canada Institute (Sept. 2004), *available at* http://www.savemiwater.org/waterpolicy/Woodrow%20Wilson%20Center%20Documents.pdf (last visited Nov. 15, 2013).

154. BRANDES & CHRISTENSEN, *supra* note 24, at 2–3, 8 (explaining that "centuries-long recognition of these [public] rights is not mere historical happenstance and goes beyond just public access. The Public Trust Doctrine recognizes and reflects the fundamental need to safeguard public rights and interests by ensuring long-term protection of limited and vulnerable resources necessary for survival and well-being.").

155. *See generally* Canadian Forest Prod. v. R. in Right of B.C., [2004] 2 S.C.R. 74 (Can.) (discussing U.S. cases and their use of the public trust doctrine).

Act.[156] The Northwest Territory Environmental Rights Act declared that there is a "collective interest of the people of the Territories in the quality of the environment and the protection of the environment for the future generations," and granted residents the right to bring an action in court to protect the "public trust."[157]

Given the historical and modern legal and political support for public trust principles in Canada, and the consistency of those principles with Canadian law, there should be no theoretical or doctrinal impediment for a legislative or governmental body like the IJC to adopt or follow public trust principles. In fact, as observed by water policy experts, the time may be ripe to implement public trust principles—a "Magna Carta Natura"—to ensure the quantity and quality of our water for present and future generations.[158]

D. The Public Trust and Treaty Rights of Indigenous People

The public trust doctrine is compatible with and would protect the rights of the indigenous peoples who inhabited the Great Lakes region before settlement by Europeans. The rights of these Canadian First Nations and American Indian Tribes to preservation of the quality and quantity of Great Lakes Waters was never relinquished under their numerous treaties involving the lands and adjacent waters within the Great Lakes and St. Lawrence River basins.[159] These indigenous Nations strongly believe that water must be protected and preserved for future generations.[160]

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156. Environment Act, R.S.Y. 2002, c. 76, preamble (Can.) (stating "the Government of the Yukon is the trustee of the public trust and is therefore responsible for the protection of the collective interest of the people of the Yukon in the quality of the natural environment").

157. Environmental Rights Act, R.S.N.W.T. 1988, c. 83 (Can.). Only one court has interpreted the provision, in a case involving the duties under a wildlife hunting act. The court noted that government and the hunter had a public trust responsibility. "[W]ith special privileges comes the special responsibility" (quoted in Jackson et al., *supra* note 29).

158. RALPH PENTLAND & CHRIS WOOD, DOWN THE DRAIN: HOW WE ARE FAILING TO PROTECT OUR WATER RESOURCES 10 (2013); Pentland, *supra* note 24, at 13.

159. *See generally* Jacqueline Phelan Hand, *Protecting the World's Largest Body of Fresh Water: The Often Overlooked Role of Indian Tribes' Co-Management of the Great Lakes*, 47 NAT. RES. J. 815, 816–22 (2007).

160. Frank Ettawageshik, *The Boundary Waters Treaty and Protecting Freshwater Resources in North America: Remarks of Tribal Chairman Frank Ettawageshik*, 54 WAYNE L. REV. 1477, 1477 (2008) (stating "What first comes to my mind is to speak of the value that we place in the water. We are taught that water is the life-flood of Mother Earth and that water is essential to life . . . Water is different from other things that we consider; water is not a commercial commodity, but rather it is required for our very existence; it flows in our veins; we all spend time in the water in our mother's womb; it flows in the veins of Mother Earth."). WATER DECLARATION OF THE ANISHINAABEK, MUSHKEGOWUK AND ONKWEHONWE IN ONTARIO 1 (Oct. 2008) (stating that the waters include "rain waters, waterfalls, rivers, streams, creeks, lakes, mountain springs, swamp springs, bedrock water veins, snow, oceans, icebergs, the sea" and "women are the keepers of the waters . . . they have the responsibility to care for the land and water").

The doctrine of federal reserved water rights, commonly known as the *Winters* doctrine, is another powerful restraint on private water rights that protects the water rights of indigenous peoples. The doctrine, first articulated in the Supreme Court case of *Winters v. United States*, allows the federal government to reserve water rights on certain federal lands such as Indian Reservations.[161] To date, the courts have recognized *Winters* rights solely in the prior appropriation context. Only one case exists where an Indian tribe has attempted to assert *Winters* rights in a fully riparian jurisdiction.[162] However, scholars agree that the *Winters* doctrine could apply in riparian jurisdictions.[163] One strong argument for this is that tribal reserved rights exist for two purposes and "neither purpose is confined to a line west of the 100th meridian."[164] These purposes are: (1) to allow tribes to continue pre-existing or aboriginal practices, and (2) to allow tribes to accomplish the purposes for which the government established its reservation.[165] Furthermore, in the *Mattaponi Indian Tribe* case the Circuit Court of Virginia concluded that, "[b]ecause reserved water rights hinge on the question of necessity, it is plausible that even in a riparian jurisdiction it may be necessary to imply reserved water pursuant to an Indian reservation or treaty-granted right."[166] The court reasoned such because "[c]ommon law riparian only grants a riparian owner [reasonable use of water]," and not "sufficient water for a particular purpose," as does the *Winters* doctrine.[167] Accordingly, if a tribe could show that "riparian law would not provide [it] with the quantity or quality of water sufficient to sustain its Indian reservation, protect [its treaty rights], or preserve its aboriginal practices," then the tribe would most likely satisfy *Winters*' necessity requirement and therefore be able to assert reserved water rights.[168]

In the past decade Canadian First Nations and American Indian Tribes have asserted that existing legal mechanisms, such as the *Winters* doctrine, do not adequately protect their indigenous rights. Embracing the public trust doctrine would be a means of addressing those concerns. While

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161. *See* Winters v. United States, 207 U.S. 564 (1908) (discussing the federal governments reservation of water rights on Indian lands).

162. Mattaponi Indian Tribe v. Virginia, No. 3001-RW/RC, 72 Va. Cir. 444, *1 (Va. Cir. Ct. 2007).

163. *See* Judith V. Royster, *Winters in the East: Tribal Reserved Rights to Water in Riparian States*, 25 WM. & MARY ENVTL. L. & POL'Y REV. 169, 191 (2001) (examining the question of tribal reserved rights in riparian jurisdictions and concluding that tribal reserved rights are applicable in the East, as well as in the West). *See also* Hope M. Babcock, *Reserved Indian Water Rights in Riparian Jurisdictions: Water, Water Everywhere, Perhaps Some Drops for Us*, 91 CORNELL L. REV. 1203, 1234 (2006) (explaining that *Winters* rights apply in the East for normative and utilitarian reasons).

164. Royster, *supra* note 163, at 191; *see also* Babcock, *supra* note 161, at 1234–39.

165. Babcock, *supra* note 163, at 1239.

166. *Mattaponi*, 72 Va. Cir. at *14.

167. *Id.*

168. *Id.* at *15.

determination of Canadian First People or American Indian tribal treaty rights in water may not be within the jurisdiction of the IJC,[169] the adoption of public trust principles may well be compatible with and protect their treaty rights and uses of the Great Lakes in the same way that these principles would protect the rights of the public to use these waters.[170]

E. Public Trust in International Agreements and Great Lakes

The public trust has also been recognized in several international declarations and agreements.[171] The words "held in trust" were incorporated into the Great Lakes Charter,[172] and the originally proposed draft Annex 2001, an addendum to the Charter negotiated by the governors and provinces as part of an effort to adopt a compact to implement the Charter's goals. This phrase is also found in the Federal Water Resources Development Act, which bans diversions or exports from the Great Lakes basin unless all eight governors of the Great Lakes states consent.[173] Similarly, the Great Lakes-St. Lawrence River Basin Water Resources Compact, signed by all eight Great Lakes states, finds that the waters of the basin are "a public resource held in trust."[174] However, the public trust does

169. INT'L JOINT COMM'N, PROTECTION OF THE WATERS OF THE GREAT LAKES: FINAL REPORT TO THE GOVERNMENTS OF CANADA AND THE UNITED STATES 38 (Feb. 22, 2000), http://www.cglg.org/projects/water/docs/IJC2000Report.pdf .

170. *See* Ettawageshik, *supra* note 160; Memorandum from William Rastetter to IJC (Nov. 23, 2011), *in* IJC PUBLIC TRUST REPORT, app. Tab 5 at 1-2.

171. In addition to those provisions pertaining to the Great Lakes, *see* G.A. Res. 64/292, ¶ 1, U.N. Doc. A/RES/64/292 (July 28, 2010) (recognizing "the right to safe and clean drinking water and sanitation as a human right that is essential for the full enjoyment of life"). *See also* Press Release, United Nations Dep't of Pub. Info., General Assembly Adopts Resolution Recognizing Access to Clean Water, Sanitation as Human Right, By Recorded Vote of 122 in Favour, None Against, 41 Abstentions (July 28, 2010), *available at* http://www.un.org/News/Press/docs/ 2010/ga10967.doc.htm (last visited Oct. 20, 2013); *see*, UN News Center, *General Assembly Adopts Resolution Recognizing Access to Clean Water, Sanitation as a Human Right, By Recorded Vote of 122 in Favour, None Against, 41 Abstentions*, (July 28, 2010), *available at* http://www.un.org/News/Press/docs/ 2010/ga10967.doc.htm (last visited Nov. 28, 2011).

172. *See* Council of Great Lakes Governors, Great Lakes Charter: Principles for the Management of Great Lakes Water Resources, Findings, Feb. 11, 1985, *available at* http://www.cglg.org/projects/water/docs/GreatLakesCharter.pdf. The Great Lakes Charter is an agreement signed by all eight states and Ontario and Quebec, addressing flows, water levels, and environmental issues in the Great Lakes basin. Other than this general "finding" of "held in trust" the Charter is silent about applying public trust principles as a standard, even though the doctrine's principles are embedded in the common law and several constitutional and statutory provisions of the states.

173. Water Resources Development Act of 1986, Pub. L. No. 99-662, § 1125, 100 Stat. 4082, 4244 (1986); 42 U.S.C. 1963d-20(d) (2006). The diversion ban and governor's consent made findings, but did not impose standards, and was silent about public trust in Great Lakes waters as recognized by the courts.

174. Great Lakes-St. Lawrence River Basin Water Resources Compact, § 1.3(1)(a), Dec. 13, 2005, *available at* http://www.cglg.org/projects/water/.

not appear in the decision making standard of the Compact, despite the fact that rights of public use or public trust in the Great Lakes and navigable waters remain a substantive limitation on use and diversions, and is deeply anchored in the common law and sovereignty of both countries, the states, and provinces.[175]

III. THE MODERN REACH OF THE PUBLIC TRUST DOCTRINE

A. Basic Principles of the Public Trust Doctrine

Although public trust principles have been adopted in many different contexts, several identifiable principles repeatedly emerge. As stated by Professor Sax in his seminal article on public trust law, courts take a dim view of actions that attempt "either to reallocate that resource to more restricted uses or to subject public uses to the self-interest of private parties."[176] There are three fundamental substantive public trust principles that are often recognized.[177]

i. Non-Alienation and Need for Valid Public Purpose

First, under *Illinois Central*, the Canadian Supreme Court's decision in *Vancouver v. Canadian Pacific Railroad* and earlier cases, and state and provincial court decisions, navigable waters are held in trust for public use and, therefore, cannot be alienated by government or owned and exclusively occupied by private persons.[178] This has been characterized by the courts as prohibiting the sale, transfer, or control of public trust waters or natural resources for private purposes, or stated conversely, as requiring that a proposed use or transfer of public trust waters be for a primarily public purpose.[179]

ii. No Interference or Impairment

Second, neither the government nor a private person can authorize or engage in a use that would interfere with or impair public trust waters or the

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175. *See* Olson, *supra* note 21, at 1121.

176. Sax, *supra* note 15, at 490. People *ex rel.* Scott v. Chi. Park Dist, 360 N.E.2d 773, 781 (Ill. 1976) (holding a disposition of parklands for business and jobs was not a public purpose).

177. Other water and public trust law experts have classified the principles differently under public trust law. *See* Scanlan, *supra* note 21, at 129. For discussion of principles in Michigan and Wisconsin, *see* James M. Olson, *The Public Trust Doctrine: Procedural and Substantive Limitations on the Governmental Reallocation of Natural Resources*, 1975 Det. Col. L. Rev. 161, 173, 190–99 (1975).

178. BARLOW & OLSON, *supra* note 19.

179. Sax, *supra* note 15.

public's use of such waters and their bottomlands and foreshore.[180] An ancillary principle is that even if a private person enjoys a right to use water resources, such as a riparian owner's right to a dock or a landowner's right to remove groundwater, the private right or use, known as the *jus privatum*, sits side-by-side with the public right, *jus publicum*, so long as the private use does not interfere with or impair the public use or rights.[181]

iii. Duty to Account for Protection of Public Trust Waters and Uses

Third, as is implied necessarily from the public purpose and no impairment principles, government has a duty to ensure, based on facts and findings, that a proposed use of public trust waters or resources will not violate these standards.[182] For this reason, courts in the United States have recognized and enforced this principle as a fundamental component of the public trust doctrine, although courts have recognized the duties in differing ways.[183] Courts in Hawai'i have imposed a number of duties on the state to assure that the water would be used in the public interest, not impair the public trust, and not serve an improper private or public purpose, and to engage in long term planning to protect the public trust waters, uses, and the ecosystem.[184] In North Dakota, the Supreme Court ruled that this duty included a duty to evaluate and establish a long term water plan to ensure no impairment of water resources under the state's public trust responsibility.[185] In Michigan, courts have imposed a procedural duty to ensure that public trust standards or principles have been met based on duly recorded findings of fact.[186] California courts have also consistently recognized a duty to protect the integrity of flows, water levels, and aquatic ecosystems.[187]

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180. BARLOW & OLSON, *supra* note 19.

181. Tweedie v. R., [1916] 52 S.C.R. 197, 214 (Can.).

182. *See, e.g.*, Obrecht v. Nat'l Gypsum Co., 105 N.W.2d 149–51 (Mich. 1960) 149–51 (holding Michigan's public right is greater than National Gypsum's wharfage rights unless the state provides regulatory assent).

183. *See* Lake Beulah Mgmt. Dist. v. St. Dep't Natural Res., 799 N.W.2d 73, 76 (Wis. 2011) (imposing a duty on the state DNR to consider the effects of a high capacity well on a nearby navigable lake); Ariz. Ctr. for Law in the Pub. Interest v. Hassell, 837 P.2d 158, 170 (Ariz. Ct. App. 1991) (holding that the state had a duty and obligation to maintain the public trust and uses for the enjoyment of present and future generations).

184. *Waihole II*, 9 P.3d 409, 451–51 (Haw. 2000); Kelly v. Oceanside Partners, 140 P.3d 985, 1002–03 (Haw. 2006) (recognizing state's affirmative duty to implement adequate water protection measures to assure developer's stormwater plan did not violate or impair public trust in adjacent waters).

185. United Plainsmen Ass'n v. N.D. St. Water Conservation Comm'n, 247 N.W.2d 457, 463 (N.D. 1976).

186. *Obrecht*, N.W. 2d at 149.

187. Nat'l Audubon Soc'y v. Super. Ct. of Alpine Cnty. (*Mono Lake*), 658 P.2d 709, 724 (Cal. 1983); Ctr. for Biological Diversity v. FPL Grp., Inc., 83 Cal. Rptr. 3d 588, 596 (Cal. Ct. App. 2008).

B. Corollary Principles

In addition to the basic principles, several corollary principles have been widely recognized.

i. Burden of Proof

Courts have readily imposed a burden of proof on the person proposing the use or transfer of a public trust resource.[188] The burden is based on the government's duty to ensure there is no improper alienation or impairment, and the fact that the public value of public trust waters or resources is presumed to be substantial or immeasurable.[189] This derives from the fact that the public value and uses cannot be subordinated, so an applicant who wants to use public trust waters must affirmatively demonstrate public purpose and no harm. This is akin to the precautionary principle,[190] in that it would require, as a result of the nature of the public trust itself, a denial of the application to use until adequate information was submitted to establish no violation of the basic public trust principles would occur.

ii. "Nibbling" or Cumulative Effects

Some courts have ruled that the government's affirmative duty to protect the public trust includes the duty to take into account the cumulative effects of a use that would impair the public trust waters or uses.[191] This, in effect, is related to the burden of proof, because the presumption is that if the entity proposing the use cannot show that there are no cumulative effects, and if there is a lack of scientific data, studies, or other information to show "nibbling" or cumulative effects, then there can be no recorded finding that the use will not impair the public trust waters or uses.

For example, the Michigan Supreme Court rejected a developer's argument that filling a few lots was *de minimis* in relation to the whole of Lake St. Clair and the Great Lakes, and ruled "[a]pplication of the [*de*

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188. Grosse Isle v. Dunbar & Sullivan Dredging Co., 167 N.W.2d 311, 316 (Mich. Ct. App. 1969) (holding that substantial public value of navigable waters for public use is presumed); *Waihole II*, 93 P.3d 643, 657.

189. *Obrecht*, 105 N.W.2d at 149–51; *see Illinois Central*, 146 U.S. at 453.

190. *Guiding Principles*, INT'L JOINT COMM'N, http://ijc.org/en_/Guiding_Principles (last visited Oct. 19, 2013) (stating in principal number ten, "it may sometimes be necessary to adopt a precautionary approach . . . where prudence is essential to protect the public welfare").

191. *Waihole II*, 93 P.3d at 658.

minimis] doctrine . . . may involve making it equally so elsewhere. In total consequence, the state's trust interests . . . public rights could be affected to an extent . . . considerably more than a trifling matter."[192] Similarly, in Hawai'i's *Waihole* water diversion cases the court held that "the public trust compels the state duly to consider the cumulative impact of existing and proposed diversions on public trust purposes."[193]

iii. Affirmative Duty to Protect Flows, Level, and Water Quality

Government also has a continuing substantive duty to protect public trust waters, their flows, levels, quality, and the integrity of the ecosystem itself.[194] Thus, in addition to basic principles, the duty to consider and determine effects on public trust resources and uses includes effects on flows, levels, quality, and the integrity or purity of waters or ecosystems connected to the public trust resources at issue.

iv. Accommodation or Balancing Uses

Courts balance competing public uses, assuring that traditional public trust uses, such as boating, swimming, and recreation, are not harmed by other public use. In cases where courts have recognized a public trust in groundwater or non-navigable water, which are not traditionally protected by the public trust, courts have accommodated or balanced uses so long as any one use does not alienate or impair a public purpose or use that is protected by the public trust.[195] In other words, under these circumstances courts exercise strict scrutiny over competing uses to ensure compliance with public trust obligations. This is particularly the case in western appropriation or modified allocation water law jurisdictions and in reasonable use jurisdictions in the east applying a balancing test of private and public uses.[196] However, a similar balancing approach is generally applied to private uses and protected public uses regardless of the water law regime.[197]

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192. People v. Brodell, 112 N.W. 2d 518, 518–19 (Mich. 1961); *See also* Hixon v. Pub. Serv. Comm'n, 146 N.W.2d 577, 589 (Wis. 1966).

193. *Waihole II*, 9 P.3d at 455.

194. *Kelly*, 140 P.3d at 1002; *In re* Water Use Applications, 9 P.3d at 450; *In re* Omya Solid Waste Facility Final Certification, No. 96-6-10 Vtec, at 3–4 (Vt. Super. Ct. Feb. 28, 2011), *available at* https://www.vermontjudiciary.org/gtc/environmental/ENVCRTOpinions2010-Present/10-096d.OmyaSWCertif.rcn.pdf (last visited Oct. 20, 2013) (hereinafter *In re Omya*).

195. *See Hassell*, 837 P.2d at 170–71; *Waihole II*, 93 P.3d at 657.

196. *See, e.g.*, Thompson v. Enz, 154 N.W.2d 473, 477 (Mich. 1967) (balancing private riparian reasonable use of lake in light of correlative public uses protected by public trust).

197. State v. Pub. Serv. Comm'n, 81 N.W.2d 71, 73 (Wis. 1957).

C. Flexible Nature of the Public Trust Doctrine

As reflected in *Illinois Central*, the scope and form of the public trust doctrine is flexible and has evolved over time.[198] The body of the trust traditionally applied to navigable waters and their bottomland, shoreline, fish, and aquatic habitat such fish spawning areas and wetlands. Today it has been extended to all aspects of the inextricably connected ecosystem that is part of or essential to the common body of water and the public's use of the resource.[199] This is in keeping with the broader characterization of public trust resources by the U.S. Supreme Court in *Illinois Central*, "[s]o with trusts connected with public property, or with property of a special character, like lands under navigable waters, they cannot be beyond the entire direction and control of the state."[200] Further, as aptly stated, "[t]he public trust doctrine . . . should not be considered fixed or static, but should be molded and extended to meet the changing conditions and needs of the public it was created to benefit."[201]

As a result, the public trust doctrine or its principles have been applied to non-navigable waters,[202] groundwater,[203] beaches,[204] wetlands,[205] and other uses of special public resources, or to protect swimming, recreation, parklands, and other special or unique public lands.[206] Moreover, where public trust resources have been recognized by state constitutional or statutory provisions as falling within the purview of public trust, almost without exception, modern courts have accepted and applied the public trust doctrine to uses of non-traditional waters or other public natural resources.

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198. *Illinois Central*, 146 U.S. at 436.

199. Kanner, *supra* note 32, at 82–85; Charles F. Wilkinson, The *Headwaters of the Public Trust: Some Thoughts on the Source and Scope of the Traditional Doctrine*, 19 ENVTL. L. 425, 453–55 (1989).

200. *Illinois Central*, 146 U.S. at 454.

201. Neptune City v. Borough of Avon-by-the-Sea, 294 A.2d 47, 54 (N.J. 1972); *see also* Daytona Beach v. Tona-Rama, Inc., 271 So.2d 765, 767-68 (Fla. Dist. Ct. App. 1972), *quashed*, 294 So.2d 73 (Fla. 1974); Paepcke v. Pub. Bldg. Comm'n of Chi., 263 N.E.2d 11 (Ill. 1970) (finding that it was "necessary, in good faith and for the public good, to encroach to some extent upon lands"). Moore v. Sanborne, 2 Mich. 519, 525 (stating the "servitude of the public interest [the trust] depends rather on the purpose for which the public requires the use of its stream, than any particular mode of its use").

202. *See Mono Lake*, 658 P.2d at 721.

203. *Waihole II*, 93 P.3d at 445.

204. Marks v. Whitney, 491 P.2d 374, 377 (Cal. 1971).

205. *See generally*, Just v. Marinette Cnty., 201 N.W.2d 761 (Wis. 1972) (holding that protection of wetlands are within a states police power under the idea that their lands held for the public).

206. Kanner, *supra* note 32, at 80–82; James M. Olson, *Toward a Public Lands Ethic: A Crossroads in Publicly Owned Natural Resource Law*, 56 J. URBAN LAW 739, 853–61 (1979).

For example, the public trust doctrine has been applied in the context of non-navigable streams as well as ground water,[207] either because of the effects on navigable water or because statutory or constitutional provisions recognized the waters as being protected by the public trust. For example, in California's notable *Mono Lake* case, the court held that diversion of water from non-navigable tributaries violated the public trust because the diversions detrimentally impacted water levels in the connected navigable lake.[208] Mono Lake was already overdrawn, and the additional diversions would have depleted the lake to levels that no longer served the public interest.[209] Additionally, courts have readily applied the public trust doctrine to non-traditional waters or other public natural resources where protected by state constitutional[210] or statutory provisions.[211] For example, the Wisconsin Supreme Court recently ruled that, under its common and

207. Jack Tuholske, *Trusting the Public Trust: Application of the Public Trust Doctrine to Groundwater Resources*, 9 Vt. J. Envtl. L. 189, 221–26 (2008) (stating that given the pressure human consumption has placed on groundwater resources, a new legal framework is necessary to protect these resources. The author argues that it is only logical, given the interconnected nature of water and related resource issues, that the public trust should expand beyond the traditional protection of real property (i.e. tidelands, lakeshores, and the beds and banks of navigable streams) to include the protection of groundwater. The traditional notions limiting the public trust doctrine to those waters which are navigable in fact is eroding, in recognition of the fact that the water itself as a single connected whole is the common resource that warrants protection. Moreover, even if protections are limited to navigable or connected tributary waters, those protections can provide a basis to reach conduct upstream or upgradient that are shown to impair or subordinate the navigable or other protected public trust waters or natural resources based on the Mono Lake case discussed below, n. 208 infra, and accompanying text.

208. *Mono Lake*, 658 P.2d at 721; *see also Hassell*, 837 P.2d at 165–66 (protecting non-navigable waters as public trust).

209. *Mono Lake*, 658 P.2d at 711.

210. *See, e.g.*, CAL. CONST. art. X, § 4 (stating that no person or entity "shall be permitted to exclude the right of way to such water whenever it is required for any public purpose, nor to destroy or obstruct the free navigation of such water");
HAW. CONST. art. IX, § 1 ("All public resources are held in trust by the State for the benefit of the people"); ALASKA CONST. art. VIII, § 3 ("wildlife, fish, and all waters are reserved to people for common use"). *See also* Robin K. Craig, *A Comparative Guide to the Western States' Public Trust Doctrines: Public Values, Private Rights, and the Evolution Toward an Ecological Public Trust*, 37 ECOLOGY L.Q. 53 (2010) (providing a state-by-state analysis of the application of the Public Trust Doctrine in western states); Craig, *supra* note 5 (providing a state-by-state analysis of the application of the Public Trust Doctrine in eastern states).

211. *See, e.g.*, ARIZ. REV. STAT. ANN. § 37-1130 (1992) ("[t]his state may obtain any water that is necessary to maintain and protect public trust values."); VT. STAT. ANN. tit. 10 § 1390 (5) (2008) ("the groundwater resources of the state are held in trust for the public" and "manage groundwater resources . . . for the benefit of citizens who hold and share rights n those waters"); N.H. REV. STAT. ANN. § 233-A:1 (1993) ("bodies of freshwater . . . [more than 10 acres] . . . held in trust by the state for public use"); N.H. REV. STAT. ANN. § 481:1 (1985) ("[W]ater of New Hampshire whether located above or below ground constitutes . . . invaluable public resource which should be protected, conserved, and managed in the interest of present and future generations. The state as trustee . . . careful stewardship over all the waters"); N.J. STAT. ANN. § 58:11A-2 (West 1977) ("to restore and maintain the chemical, physical and biological integrity of the waters of the state, including groundwaters, and the public trust therein"); N.Y. ENVTL. CONSERVATION LAW § 15-1601 (McKinney 1989) ("All the waters of the state are valuable public natural resources held in trust by this state, and this stage has a duty as trustee to manage its waters for the use and enjoyment of present and future residents.").

constitutional law, the public trust doctrine imposed a duty on the state when reviewing a proposal for a high capacity groundwater well to consider the effects of its actions on public trust waters or uses.[212] Similarly, in 2008, Vermont passed a statute recognizing that "groundwater resources of the state are held in trust for the public."[213] The first court to interpret the law ruled that, in light of the statute, groundwater was subject to the state's common law public trust doctrine, and remanded for application of public trust principles.[214] These applications of public trust principles demonstrate the inherent flexibility in the doctrine as is necessary to fulfill the fundamental purposes of the public trust.

Recent decisions from the Hawai'i Supreme Court further illustrate the flexible and evolving nature of the public trust. In Hawai'i the public trust is a constitutional doctrine,[215] and state courts have interpreted the doctrine liberally, finding it applicable in a number of situations. In the seminal *Wai'hole Ditch* case, pitting the interests of land developers against the interests of the public, the Hawai'i Supreme Court found that state constitutional protection of public natural resources applies to the groundwater of the state.[216] The court stated in its opinion, "[b]ased on the plain language of our constitution and a reasoned modern view of the sovereign reservation, we confirm that the public trust doctrine applies to all water resources, unlimited by any surface-ground distinction."[217]

In the recent *Iao Groundwater Management Area* decision, the Hawai'i Supreme Court built on the *Wai'hole* decision and further expanded the reach of the public trust.[218] The court rejected the Commission on Water Resource Management's decision in setting Interim Instream Flow Standards (IIFS) for four major streams, holding that the Commission had failed to consider traditional Native practices, as well as other instream uses, when it set the IIFS.[219] In particular, the court found that the Commission must carefully balance instream and non-instream uses in order to protect the public trust, and has a duty to "protect instream values to the extent practicable."[220] The idea that a variety of instream water uses, including traditional Native Hawai'ian practices, would be protected

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212. Lake Beulah Mgmt. Dist. v. St. Dep't Natural Res., 799 N.W.2d 73, 76 (Wis. 2011); Scanlan, *supra* note 21, at 139.

213. VT. STAT. ANN. tit. 10, §§ 1416–1419 (2008); VT STAT. ANN. tit. 10, § 1390 (2008).

214. *In re Omya*, No. 96-6-10 Vtec, at 3–5.

215. HAW. CONST. art. XI.

216. *Waihole II* 93 P.3d 445, 489 (interpreting Haw. Const. art. XI, "all public natural resources are held in trust by the State for the benefit of the people ").

217. *Waihole II* 93 P.3d 447.

218. *In re* 'Īao Ground Water Mgmt. Area High-Level Source Water Use Permit Applications, 287 P.3d 129, 190 (Haw. 2012).

219. *Id.* at 149, 190.

220. *Id.* at 159.

by the public trust, implicates an expanding public trust doctrine, in this instance the inclusion of a broader range of instream users.

The *Iao Groundwater* decision was also noteworthy for the Court's finding that the Commission violated the public trust in its treatment of diversions. The Court noted that the Commission must consider "system losses,"[221] as well as available alternative sources of water that will minimize damage to public trust resources, when setting the IIFS.[222] Notably, the court found that the Commission had a duty to protect the public trust, and fulfillment of that duty required the Commission to justify any permitted diversion of public trust waters with substantial factual analysis demonstrating that the Commission considered the diversion's impact on the public trust.[223]

The critical point articulated by the court in both the *Iao* and *Wai'hole Ditch* cases is that private rights in water do not trump the public trust doctrine, which is intended to protect the water resource itself, and not just certain uses of the water. The public trust in Hawai'i now extends to protect the economic and ecological value of whole water systems, in recognition of the fact that a healthy watershed depends on the health of the entire water system and not simply the volume of water in a particular river or stream.

Even the U.S. Supreme Court weighed in on the flexible nature of the public trust, in the case of *PPL Montana, LLC v. Montana*.[224] That case involved controversy over state ownership of riverbeds under existing hydroelectric power plants.[225] The State's argument in *PPL Montana* was based on the flawed contention that Montana holds title to the riverbeds under the non-navigable waters in question under the equal footing doctrine, and the discussion focused on determining navigability under that doctrine. But Justice Kennedy's opinion pays a brief yet significant homage to the public trust doctrine. In a last ditch effort to establish title, the State argued that the public trust doctrine would be undermined if the State is denied title to the riverbeds.[226] Justice Kennedy responded by drawing a distinct line between the equal footing doctrine and the public trust doctrine. The equal footing doctrine has a constitutional basis.[227] Under the equal footing doctrine, state title to riverbeds is determined using the

221. *Id.* at 133.
222. *Id.* at 163.
223. *Id.* at 159.
224. PPL Mont., LLC, v. Mont., 132 S.Ct. 1215, 1235 (2012).
225. *Id.* at 1222.
226. *Id.* at 1233.
227. U.S. CONST. art. IV, § 3, cl. 1.

federal navigability for title test.[228] The public trust doctrine on the other hand has a common law basis, and "remains a matter of state law."[229] Kennedy writes, "[u]nder accepted principles of federalism, the States retain residual power to determine the scope of the public trust over waters within their borders, while federal law determines riverbed title under the equal-footing doctrine."[230]

The critical implication here is that a body of water does not have to meet the federal navigability for Title test in order to fall under the public trust; the public trust is determined by state law and states have the authority to determine "the contours" of the public trust. The opinion implies that even if the state doesn't hold title to the riverbed, it still holds in trust the water in the river. This decision essentially separates the public trust from the property-based equal footing doctrine, and frees the public trust from the archaic navigability requirement. Kennedy's opinion affirms states' authority to determine the scope of the public trust, and refuses to limit the trust to navigable waterways.

The *PPL Montana* decision also cites to the *Mono Lake* case in its discussion of the public trust. *Mono Lake*, decided in 1983, firmly established the State of California's authority to determine the scope of the public trust within its borders. In *Mono Lake*, California determined that the public trust extends to non-navigable tributaries of navigable waterways, and the state has authority under its public trust power to prevent anyone from acquiring or using a vested water right in any way that might harm the interests (scenic, ecological, recreational, etc.) protected by the public trust.[231] In other words, vested water rights are still subject to the public trust; the private owner of a water right "can claim no vested right to bar recognition of the trust or state action to carry out its purposes."[232]

Although decided in the California Supreme Court, the *Mono Lake* decision is cited by the Supreme Court in the *Montana PPL* decision as an example of a legitimate exercise of the state's authority to decide the scope of the public trust. Both *Mono Lake* and *Montana PPL* affirm that the states' public trust authority exists independently of other legal doctrines or statutory schemes governing the use and protection of water. Both decisions give the states broad authority to determine the scope of the public trust within their borders. For example, both decisions support the Hawai'i

228. *The Daniel Ball*, 77 U.S. 557, 563 (1870) (stating that navigability is determined by the "susceptibility" of a water body for use as a highway for commerce at the time that statehood is acquired).

229. *PPL Mont.*, 132 S.Ct. at 1235.

230. *Id.*

231. *Mono Lake*, 658 P.2d at 721.

232. *Id* at 723.

Supreme Court decision in *Iao Groundwater Management*, which extends the public trust to protect whole water systems. For our purposes, these decisions, particularly the Supreme Court's decision in *Montana PPL*, allow us to argue persuasively that the public trust extends to resources not traditionally covered by the doctrine, such as groundwater.

IV. THE IJC, BOUNDARY WATERS TREATY, AND PUBLIC TRUST PRINCIPLES

A review of the IJC's history and the Boundary Waters Treaty supports the idea that a commons framework and public trust principles are consistent with, and perhaps inherent in, the authority, purposes, and principles of the Treaty, as well as Canadian and United States public trust law.[233] In addition, such a framework and principles are compliant with the goals and special concerns of the IJC's work in implementing the Great Lakes Water Quality Agreement.[234] Public trust principles are inherent in the Treaty and could expressly be blended into the guiding principles adopted by the IJC and the provisions of the Great Lakes Water Quality Agreement.

A. Public Trust Principles Inherent in the Boundary Waters Treaty

Under the Boundary Waters Treaty, the Great Lakes common boundary waters are shared equally by the two countries and their respective states and provinces and citizens.[235] The purpose of establishing the IJC was to prevent disputes regarding the use of boundary waters, and the Preamble states that the Treaty was designed to prevent disputes and settle questions "involving rights, obligations, and interests" of both countries, their state governments, and the citizens who are inhabitants of these countries.[236] This, by itself, seems to contemplate some integration of public trust principles to the extent that they arise out of the common law right of public use of navigable waters. More generally, public trust principles, or principles consistent with the public trust, are found

233. Boundary Waters Treaty, *supra* note 9, at 2608.

234. *See* BARLOW, *supra* note 18, at 31–33.

235. Boundary Waters Treaty, *supra* note 9, at 2608.

236. Boundary Waters Treaty, *supra* note 9, at 2607. Notably, boundary waters under the Treaty do not include tributary rivers, streams, or groundwater. The IJC has recognized that these tributary waters are a single hydrological system, and that the interaction of uses, flows, levels of these waters and their tributaries are directly related to the quantity and quality and integrity of the ecosystem. *See* INT'L JOINT COMM'N, THE PROTECTION OF THE WATERS OF THE GREAT LAKES: FINAL REPORT TO THE GOVERNMENTS OF CANADA AND THE UNITED STATES (2000), *available at* http://www.ijc.org/php/publications/html/finalreport.html (last visited Oct. 20, 2013). BOTTS & MULDOON, *supra* note 25.

throughout the treaty, and the adoption of the public trust doctrine would blend well with the principles inherent in the treaty.

To begin with, Article I of the Treaty reflects the background public trust principle of the *jus publicum*—the paramount right of the public to use these navigable waters for navigation, boating, fishing and other public uses under English common law—which was recognized in court decisions from both countries at the time of the signing of the Treaty in 1909.[237] Article I declares that this general right of the public to use the boundary waters is to be preserved and continue forever free and open:

> [T]he navigation of all navigable boundary waters shall forever continue free and open for the purposes of commerce to the inhabitants and to the ships, vessels, and boats of both countries equally, subject, however, to any laws and regulations of either country, within its own territory, not inconsistent with such privilege of free navigation and applying equally and without discrimination to the inhabitants, ships, vessels, and boats of both countries.[238]

Article III of the Treaty requires that decisions on proposed uses, obstructions, or diversions "affecting the natural level or flow of the boundary waters" or waters crossing the boundary must be approved by the IJC.[239] Public works for navigation and commerce can continue but cannot "affect the flow and level of the boundary waters of the other" or "interfere with the ordinary use of such waters for domestic and sanitary purposes."[240] This principle has been applied in a manner consistent with public trust principles. In its first decision under the Treaty, in 1913, the IJC characterized the principles in Article III as "plain, simple and direct."[241] In 1965, St. Croix Paper Company requested that the IJC approve a replacement storage dam and fish passage facility at the base of Spednic Lake that would lower water levels of the lake and impair fish habitat,

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237. *See, e.g.*, *supra* note 11.

238. Boundary Waters Treaty, *supra* note 9, at 2608. This is strikingly similar to both common law recognitions of the right of public use for navigation, boating, and fishing—the primary uses of navigable waters in the 1800s and 1900s. Article I of the Treaty is similar to the 1787 Northwest Ordinance, from which the boundaries of the five Great Lakes were established on their admission as states.

239. Boundary Waters Treaty, *supra* note 9, at 2609.

240. *Id.*

241. *In re Rainy River Improvement Co., Plans for Dam at Kettle Falls*, Order of Approval, at 7 (Apr. 13, 1913), *available at* http://www.ijc.org/php/ publications/pdf/ID23.pdf.

water quality, and downstream recreation.[242] In approving the project as "one of a kind," the IJC imposed a condition requiring "remedial protective works" that would protect these public interests and use from harm.[243]

Article IV of the Treaty unequivocally directs that waters defined as boundary waters and waters flowing across the boundary "shall not be polluted."[244] The IJC has used its powers of "Reference" under Article IX to implement the "no pollution" standard to prevent harm to public health, drinking water, and exposure to those who swim or use the waters.[245] In one of its first decisions under the Treaty, the IJC determined that this included a "probability" of harm to life, health, and property from pollution.[246] The IJC has also reported that this includes conditions that would "adversely affect" water used for drinking, navigation, fish and wildlife, bathing, recreation, farming, supply for industry, and riparian activities.[247] Several of these uses, such boating, fishing, bathing, recreation, are uses that are protected by the public trust doctrine.[248]

Article VIII takes a common and shared use approach to boundary waters by adopting principles that govern the IJC's decisions when passing on matters affecting flows or levels under Articles III and IV. Generally, each party has "equal and similar rights" in the use of waters on their side of the international boundary.[249] However, this principle is subject to an order of preference, with the exception that existing uses on either side of the boundary are not subject to these preferences. A lower-ordered use may not materially conflict with the higher preferred use in the following order of preference: (1) domestic and sanitary uses, (2) navigation and servicing of canals for navigation, and (3) use for power and irrigation.[250] All other uses, presumably, are based on the general shared "equal and similar right"

242. *In re St. Croix Paper Co. Woodland, Maine, & New Brunswick*, Order of Approval, at 1–2 (Oct. 15, 1965), *available at* http://bwt.ijc.org/docket_table/attachments/Docket%2080/Docket%2080%20Order%201965-10-15.pdf.

243. *Id.* at 3–4; *see also, In the Matter of Grand Coulee Dam and Reservoir* (Dec. 15, 1941) Order of Approval, Docket 44A, *available at* http://www.ijc.org/php/publications/html/columbia/columbiaord.htm.

244. Boundary Waters Treaty, *supra* note 9, at 2609. Article IV also requires IJC approval for remedial and protective works in waters flowing across the boundary, or in waters at a lower level than the boundary in rivers flowing across the boundaries, that raise the water level.

245. INT'L JOINT COMM'N, FINAL REPORT OF THE INTERNATIONAL JOINT COMMISSION ON THE POLLUTION OF BOUNDARY WATERS 25 (1918), *available at* http://bwt.ijc.org/docket_table/attachments/Docket%204/Docket%204%20Final%20Report.pdf (last visited Oct. 20, 2013).

246. *Id.* at 27.

247. INT'L JOINT COMM'N, REPORT OF THE INTERNATIONAL JOINT COMMISSION UNITED STATES AND CANADA ON THE POLLUTION OF BOUNDARY WATERS 6 (1950), *available at* http://bwt.ijc.org/docket_table/attachments/Docket%2054-55/Dokcet%2054%20Pollution%20of%20GL%20Channels%20Final%20Report%201950.pdf.

248. *See* BARLOW & OLSON, *supra* note 19 at §§ I and II.

249. Boundary Waters Treaty, *supra* note 9, at 2611.

250. *Id.*

principle, unless a temporary diversion is required based on local conditions and does not diminish the amount of water available for use on the other side. Finally, in matters that involve temporary variation in the equal use principle or public works that affect the natural level of water, the IJC can impose conditions or remedial orders that guard against injury to "any interests on either side."[251]

As articulated above, the Boundary Waters Treaty treats the boundary waters, including the Great Lakes, as a commons that is to be shared equally by both countries and their inhabitants. Moreover, IJC Decisions and References under the Treaty over the past 100 years frequently have shown an interest in applying the principles of equal and shared use, protecting public uses, and balancing public and private uses, many of which are recognized under the public trust doctrine.[252] The IJC has looked, at least in some cases, to the equality of uses, the common law of the provinces or states where the use or effects would occur, and the protection of public uses, fish, wildlife, and ecosystems.[253] As a result, the IJC's explicit recognition of public trust principles would be consistent with principles inherent in the Treaty itself.[254] In addition, the express adoption of the public trust principles could provide a needed framework for the IJC's evaluation and decision-making regarding a number of critical issues facing the Great Lakes and the boundary waters today.

B. Integration of Public Trust Principles into the Boundary Waters Treaty and Great Lakes Water Quality Agreement

Based on the foregoing discussion of the IJC's framework and scope of regulatory authority, the public trust doctrine could be integrated into either the implementing principles of the Treaty or the Great Lakes Water Quality Agreement (hereinafter "GLWQA").[255] Under either the Boundary Waters Treaty or the GLWQA and its integrated ecosystem approach, the adoption of a public trust principle could be instrumental in promoting research, exploration, public education, and oversight of the affects of uses, diversions, exports, obstructions, climate change, and other activities on the

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251. *Id.*

252. *See, e.g.*, Memorandum from Molly Krauza to Jim Olson (Nov. 11, 2011) *in* IJC PUBLIC TRUST REPORT app Tab 4 at 1–9 (referencing the IJC's policies including summary examples such as the IJC's Report on the Pollution of the Red River and the Raisin River) (citing Report on the Commission of the Pollution of Red River, Docket 81, p. 30 (April 1968); In the Matter of the Application of the Raisin Region Conservation Authority for Approval of Diversion to River Raisin Watershed in Ontario, Order of Approval, Docket 88A (Dec. 31, 1968) and Further Regulation of the Great Lakes, Reference, Docket 82R (June 3, 1976)).

253. Id.

254. Boundary Waters Treaty, *supra* note 9, at 2608.

255. GLWQA, *supra* note 10.

flows, levels and ecosystem of the Great Lakes.[256] It would also form a basis to integrate water quantity, quality and ecosystem protection, because protection of public trust waters and aquatic resources or uses would require government to address all threats that converge to interfere with or impair these uses and resources.[257] Finally, it would provide a basis for the IJC to demand that parties, states, provinces, and others be more accountable consistent with the duty under public trust law to consider and determine effects and harms before approving any use, diversion, obstruction, or other proposed action.[258]

The basis for evaluating these claims has already begun. The pioneering work of the IJC and its Science Advisory and Water Quality Boards has focused on critical water pollution issues, including phosphorous, toxics, non point and direct discharges, sewage, invasive species, and shipping impacts.[259] More recently, the focus has turned to the integrity of the ecosystem or "interacting components of air, land, water, and living organisms, including humans . . . within the drainage basin . . . ."[260] One of the IJC's specific goals adopts an "Ecosystem Objective" that seeks to "maintain the chemical, physical and biological integrity of the waters of the Great Lakes Basin Ecosystem."[261] In addition, the underlying goal of the GLWQA is a long-term effort to protect the boundary waters, and it has evolved into an ecosystem approach that integrates water quality with water and land uses, air deposition, direct and non point discharges, and overland stormwater drainage and run-off.[262] The GLWQA recognizes that flows and levels, whether induced or caused by human activities, are an integral part of water quality and the health and integrity of the Great Lakes ecosystem.[263] Public trust principles would provide a framework to continue to build upon this work and more fully integrate protection of

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256. *See infra* III. A. Basic Principles of the Public Trust Doctrine.

257. *Id.*

258. *Id.* Because the public trust imposes a duty on the government to prevent or remedy harm or impairment of the public trust waters or resources, the government would need to consider these impacts before approving permits.

259. *See* Agreement Between the United States of America and Canada on Great Lakes Water Quality, U.S.-Can., Sept. 7, 2012, T.I.A.S. No. 13-212 (detailing an agreement by the International Joint Commission specifically concerning itself with severally related threats to the Great Lakes in its ecosystem, including: invasive species, nutrients, chemical substances, climate change impacts, discharge from vessels, and impacts on habitats and species).

260. Agreement Between the United States of America and Canada on Great Lakes Water Quality, U.S.-Can., Sept. 7, 2012, T.I.A.S. No. 13-212 at Art. I (c).

261. *Id.* at Art. II (1).

262. *Id.* at Art. II (4)(f); Art. III (1)(b)(i).

263. *Id.* at Art. III (3) (describing the IJC's monitoring activities to ensure Ecosystem Objectives are achieved).

water quantity, quality, and ecosystems.[264] At the same time, these principles would declare as a background principle the paramount inalienable right of public use or trust that exists in these waters as a safeguard against unforeseen claims and challenges by special or private interests. This would protect the Great Lakes and their uses from threats of diversions or exports and ensure government control and protection for the many public and private users that enjoy the Great Lakes and St. Lawrence River.

Additionally, the IJC has recently had to face increasing tensions over dramatic and possibly unprecedented drops in water levels.[265] Scientific studies indicate that if these drops continue, the water levels will be at record lows in Lake Michigan and Lake Huron, a single lake system.[266] All indications point to lack of ice cover, snow pack, drought, and increased evaporation due to climate change as a contributing cause.[267] If this trend continues, evidence will show that climate change is perhaps the single largest diversion or transfer of water out of the Great Lakes basin. Given the serious impairment or interference with navigation, boating, shipping, swimming, fishing, harbors and marinas, and other public and private riparian uses, climate change impacts could be shown to be a violation of the public trust doctrine. If this conclusion is reached, then the public trust doctrine can be used to address human actions that affect the water cycle, such as releases of CO2 and other greenhouse gases. "Upstream" actions that affect water levels to a degree that violate the public trust standards or

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264. One example of how public trust principles fit within the existing work of the IJC is "Plan 2007," the Order of Approval for a hydropower project on the St. Lawrence River below Lake Ontario. Evaluation of the proposed order has involved passing on changes in flow patterns and lake levels, including the order of preference for domestic uses, hydroelectric power, and a number of existing uses and new conditions and effects on the ecosystem. The public trust doctrine provides a backdrop on which all of these issues could be considered in the context of the sovereign duty to hold the waters in trust for public use. *See generally* INT'L JOINT COMM'N, YOUR GUIDE TO THE IJC'S PROPOSED NEW ORDER OF APPROVAL AND PLAN (2007), *available at* http://www.ijc.org/files/publications/L42.pdf (last visited Nov. 19, 2013) .

265. INT'L UPPER GREAT LAKES STUDY, LAKE SUPERIOR REGULATION: ADDRESSING UNCERTAINTY IN UPPER GREAT LAKES WATER LEVELS i (2012), *available at* http://www.ijc.org/files/publications/Lake_Superior_Regulation_Full_Report.pdf; *see also* FLOW, COMMENT TO THE INTERNATIONAL JOINT COMMISSION ON DRAFT ADAPTIVE MANAGEMENT PLAN FOR ADDRESSING EXTREME WATER LEVELS AND PUBLIC TRUST PRINCIPLES 2 (2013), *available at* http://flowforwater.org/wp-content/uploads/2013/04/2013-04-15-Adaptive-Mgmt-Comments-FINAL.pdf.

266. FLOW, COMMENT TO THE INTERNATIONAL JOINT COMMISSION ON DRAFT ADAPTIVE MANAGEMENT PLAN FOR ADDRESSING EXTREME WATER LEVELS AND PUBLIC TRUST PRINCIPLES 5 (2013), *available at* http://flowforwater.org/wp-content/uploads/2013/04/2013-04-15-Adaptive-Mgmt-Comments-FINAL.pdf.

267. INT'L UPPER GREAT LAKES STUDY, IMPACTS ON UPPER GREAT LAKES WATER LEVELS: ST. CLAIRE RIVER 6 (2009), *available at* http://www.iugls.org/files/tinymce/uploaded/content_pdfs/IUGLS_St_Clair_River_Summary_Report_EN.pdf.

principles could be remedied by the courts through government, individual, or non profit organizations who have standing as legal beneficiaries of the public trust.[268]

C. Potential Application of the Public Trust Doctrine

The public trust doctrine could help address current gaps in the IJC's ability to systemically address threats facing the Great Lakes and the boundary waters. The IJC's mission and goals are centered on the protection of water quantity, water quality, and the chemical, biological and physical integrity of the ecosystem.[269] The IJC's work involves decisions regarding flows and levels and related water and ecosystem effects directly under the Boundary Waters Treaty or the GLWQA.[270] Overall, the IJC has evolved objectives focused on both water quality and ecosystem to implement its responsibilities and programs under the Treaty and GLWQA, but the IJC has not formally integrated water quantity with water quality issues.[271] Yet in the past ten years, the magnitude and layers of threats, some systemic like climate changes, water levels, and nutrient loading, to waters of the Great Lakes have become so overwhelming and multi-dimensional that IJC finds itself in a position of having to put out the fires of specific or localized threats, while larger threats gather overhead. The size, rate of change, intensity, and transboundary nature of many systemic threats to the Great Lakes and ecosystem overwhelm the existing framework.[272] The IJC could be even more effective at performing its overall responsibilities to protect flows and levels and prevent pollution if it adopted an overarching framework or principles in this century by which to evaluate issues in order to fill the gaps and compliment existing programs.[273]

Adopting the public trust doctrine as an overarching guideline could be just such a proactive step. It would ensure that the background principles of the waters being held in trust for public use are always part of the discussion, and it could provide a mechanism for integrative and

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268. FLOW, *supra* note 266, at 10–11.

269. *Guiding Principles, supra* note 189.

270. Protocol Amending the Agreement Between Canada and the U.S. on Great Lakes Water Quality, art. I, c & art. II, 1, c, *available at* http://www.ec.gc.ca/Publications/9DD80B8C-7E7A-4131-8055-D47B0B3E004F/EN-Canada-USA-GLWQA--FINAL_web.pdf.

271. *Id.*

272. As concluded in a recent, troubling study on the difficulty of protecting local and regional place features in light of the decline in overall biodiversity, the pressures and demand on water and natural resources is so great that "the problem is running away from the solution." Leahy, *supra* note 1.

273. BLUMM & WOOD, *supra* note 6, at 333–413; Michael C Blumm, *The Public Trust Doctrine: A Twenty-First Century Concept*, 14 HASTINGS W.-NW J. ENVTL. L. & POL'Y (2009).

comprehensive consideration of risks to the public trust based on the sovereign duty of the government to ensure protection of the water and ecosystem for both present and future generations. Public trust principles impose solemn and perpetual limits and duties to protect public trust waters, uses, and ecosystem, and offer an approach and principles to catch up to or get ahead of the problem. By imposing public trust principles to protect the Great Lakes, its public uses, and ecosystem, the IJC can work closer to the source of the threats, including those threats yet unknown.[274] At the same time, it can provide an umbrella or backstop protection from unanticipated demands or claims on the public trust in these waters and public natural resources.

The influx of invasive species into the Great Lakes provides one example of how the public trust doctrine could be integrated with the Treaty and the GLWQA to address current challenges facing the Great Lakes and the IJC. Invasive species threaten the Great Lakes ecosystem as well as the regional economy.[275] Public trust principles, read in conjunction with the Treaty, could provide the IJC with a comprehensive framework for advising and recommending governmental actions. Evaluating uses such as fishing and navigation in light of public trust principles would encourage an overall integrative look at the impacts of uses, diversions, obstructions or dams under Article I and Article III of the Treaty in the context of water levels, flows, or biological pollution, as well as a consideration under public trust principles of the magnitude of the risk of harm and alternative measures that would prevent that risk in the context of future generations.[276] This requires viewing the costs and risks of exchanging ballast water beyond the St. Lawrence and Great Lakes, not just in terms of economics or even scientific markers, but in light of what the outer limit is on the risk and magnitude of harm that the Basin can withstand. It perhaps provides an

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274. Henquinet & Dobson, *supra* note 20, at 346–47 (suggesting the public trust doctrine would better address multi-jurisdictional and layered water and ecosystem problems like fisheries).

275. Since the 1800s, more than 160 aquatic nuisance species have entered the Great Lakes ecosystem. The U.S. Fish and Wildlife Service estimates that the economic losses over the last decade from one particularly dangerous species, the quagga mussel, are at about $5 billion within the Great Lakes region alone. *See* Ash-har Quraishi, *Great Lakes Invasion: Quagga Mussels Wreak Havoc on Ecosystem*. CHICAGO TONIGHT, Nov. 15, 2011, 10:15 AM, http://chicagotonight.wttw.com/2011/11/15/great-lakes-invasion. It has been predicted that the Asian Carp, another significant danger to the Basin, would cripple the 7-billion-dollar-a-year Great Lakes fishing industry. Nicole Thompson, *Asian Carp Called the Biggest Threat to Great Lakes in Years*, DAILY HERALD, Feb. 14, 2011, 10:25 AM, http://www.dailyherald.com/article/20110213/news/799999463/. *See also* Mike Lewis et al., *Water Levels in the Great Lakes: A Cross-Border Problem*, NATURAL RESOURCES CANADA (Apr. 5, 2009), http://www.nrcan.gc.ca/earth-sciences/climate-change/landscape-ecosystem/by-theme/2908#collab; LESTER BROWN, WORLD ON THE EDGE: HOW TO PREVENT ENVIRONMENTAL AND ECONOMIC COLLAPSE (2011) (discussing rising temperatures of earth and their impact on global food security).

276. *Supra*, note 268 at art. II, 2 & art. III, 1, (m).

outer limit on what magnitude of threatened harm is acceptable based on public trust principles.

As another example, the Great Lakes face increasing risks of large-scale water diversions. Although a 2002 Report from the IJC International Water Use Task Force concluded that diversions from the Great Lakes were not on the horizon and would not likely happen,[277] this conclusion must now be reevaluated in light of the increasing demand on freshwater for the production of energy and food, and shifts in water law regimes in the Great Lakes states.[278] Changing demands have greatly increased the potential for diversions or exports of water to the west or elsewhere, particularly as the United States contemplates producing oil from shale rock in the western states.[279] In addition to increases in demand, changes in law over the past decade and international treaties such as NAFTA and the GATT[280] have created increased legal risk for large-scale water diversion from the Great Lakes.[281] The public trust doctrine could provide a framework by which to evaluate and prioritize these issues against the backdrop of the government's duty to protect the Great Lakes for public uses. Indeed, now more than ever it will be valuable for an international body like the IJC to expressly declare that any use, diversion, or obstruction of navigable waters is subject to the limitations of the public trust, and to the inherent rights of public use in these waters. Finally, it is time for the IJC to affirm the

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277. INT'L WATER USES REV. TASK FORCE, PROTECTION OF THE WATERS OF THE GREAT LAKES: THREE YEAR REV. 57 (2002), *available at* http://www.ijc.org/php/publications/pdf/ID1560.pdf (last visited Oct. 20, 2013).

278. Kanner, *supra* note 32, at 109–10.

279. Former New York Times journalist Keith Schneider has spent the last two years in China and the Western states looking at the demands for energy for Circle of Blue. He reports that increased demand for new sources of energy conflicts with the general demand for freshwater. *See* Keith Schneider, *In Era of Climate Change and Water Scarcity, Meeting National Energy Demand Confronts Major Impediments*, CIRCLE OF BLUE, (Sept. 22, 2010, 4:44AM), http://www.circleofblue.org/waternews/2010/world/in-era-of-climate-change-and-water-scarcity-meeting-national-energy-demand-confronts-major-impediments/.

280. Under the "Harmonizing Code System" in the General Agreement on Tariffs and Trade, Oct. 30, 1947, 55 U.N.T.S. 194, as amended in the Final Act Embodying the Results of the Uruguay Round of Multilateral Trade Negotiations, Apr. 15, 1994, 33 I.L.M. 1125 (1994), a "good" is defined to include water, and all water other than the sea, whether or not clarified or purified. A side agreement to the North American Free Trade Agreement (NAFTA), signed by the U U.S.-Can.-Mex., Dec. 17, 1992, 32 I.L.M. 289 (1993), itself does not expressly make "water" a "good" or "product," a side agreement, between Canada, Mexico, and the United States may do so. *See* JON R. JOHNSON, NORTH AMERICAN FREE TRADE AGREEMENT: A COMPREHENSIVE GUIDE 109 (1994) (explaining that "[u]nexploited resources such as . . . water in lakes, rivers, or aquifers are not 'products' and therefore are not subject to . . . NAFTA provisions . . . The governments of the NAFTA countries expressly confirmed this point with respect to water in a joint declaration issued in December, 1993.").

281. For example, the Great Lakes-St. Lawrence River Basin Water Resources Compact, as adopted in the United States, bans diversions of water from the Great Lakes but also creates a couple of significant exceptions that leave the potential for significant diversions from the Lakes as a "product." *See* Olson, *supra* note 21, at 1123.

continuing duty of governments to protect these waters for the health, safety, and welfare of its citizens.

V. CONCLUSION: AN OVERARCHING GUIDING PRINCIPLE IN PUBLIC TRUST

Based on the above, the Council of Canadians and Flow for Water (FLOW) ask the IJC to adopt, or at least study and recommend for adoption, a declaration or guiding principle that the Great Lakes Boundary waters and its connected public natural resources are held in public trust for the benefit of those citizens who live in the Great Lakes basin, and for those who visit and use and enjoy the waters of the Great Lakes Basin. In addition, or in the alternative, it is submitted that the IJC should adopt and include provisions that first recognize public trust principles and second, integrate the public trust principles into decisions and references and all matters and programs under the Great Lakes Water Quality Agreement and the Treaty, so that water quantity issues under Article III of the Treaty and water quality issues under Article IV of the Treaty and the Great Lakes Water Quality Agreement are integrated and made part of the ecosystem approach of the Great Lakes Water Quality Agreement.

A. Public Trust Principles for Waters of the Great Lakes Basin

If the IJC (or states, or other governmental bodies or agencies) adopts public trust doctrine principles, or encourages governments and private persons to recognize the principles of the doctrine as guidelines, within the scope of IJC's jurisdiction under the Treaty and Great Lakes Water Quality Agreement, the IJC will have adopted a new unifying principle that comprehensively addresses the threats to the waters of the Great Lakes Basin, and the ecosystems, economies, and quality of life and health dependent on those waters. Even in the absence of an express declaration or recognition by the IJC, the federal and state governments, local governments, and citizens should insist that the principles and rights under the public trust doctrine undisputedly apply to these magnificent waters are honored and enforced.

But public trust principles are not only important for protecting the sustainable limits of the Great Lakes and connected or tributary waters and water resources. The reasons described in this article calling for universal adoption of public trust principles for the Great Lakes under the framework of the IJC could be applied with equal force to many of the threats to our earth's water, air, and ecosystems so vital to health, a sustainable economy, quality of life and well being. Just as the waters of the Great Lakes Basin

are a single whole, so too are all of the waters of the earth through the hydrologic cycle or through what might characterized as the "hydrosphere."[282] The examples of the threats to the Great Lakes are part of the same natural processes and human behavior that threaten the planet everywhere. In order to better comprehend and address the threats simultaneously, scientists are beginning to connect the dots, and look at all inputs and outputs, impacts and effects of the entire water cycle in a given watershed. By doing this, the various actions causing harm or benefit to the water cycle and ecosystem can all be considered at once. As science begins to do this, there is a corresponding dynamic living snapshot of how human activities and natural processes interact in the air, on the earth, under the ground, in wetlands, creeks, streams, lakes, and the oceans—in effect showing these interactions at every arc of the water cycle or hydrosphere. If the public trust in water, particularly navigable or other waters and natural features recognized as such by law, has any basic value at all, it is the outside limitation or umbrella on any actions by government or others that might effect protected public trust uses so vital to every person, individually and as a member of the community.

A good example is the relationship between climate change and the impacts of dislocation or diversion of water from the Great Lakes Basin demonstrated by the recent nearly unprecedented drops in water levels in Lake Michigan and Lake Huron.

As described in Section IV above, if the scientific evidence shows that climate change, that is, the effect of greenhouse gases on the atmosphere, is impacting the water cycle by altering precipitation patterns and causing water levels to drop, it would violate the no subordination or significant impairment standard of the public trust doctrine. Another example is the 3,000 square kilometer "dead zone" in Lake Erie that developed during the summer of 2011.[283] The dead zone was caused by increased warming and nutrient run-off and discharges that resulted in closed beaches, upended recreational boating and tourism, and shut down a large portion of the local fishery for the season.[284] Fishing, boating, swimming and recreation are

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282. Interview with Jack Tuholske, Visiting Professor, Vermont Law School, at the On the Commons Great Lakes Conference, Notre Dame, Ind. (Oct. 1–2, 2012).; *see also* BLUMM & WOOD, *supra* note 6; PENTLAND & WOOD, *supra* note 158; *see generally* MAUDE BARLOW, BLUE FUTURE: PROTECTING WATER FOR PEOPLE AND THE PLANET FOREVER (2013).

283. *See* John Mangels, *Record-Sized Lake Erie Algae Bloom of 2011 May Become Regular Occurrence, Study Says*, PLAIN DEALER, (Apr. 1, 2013, 3:11 PM), http://www.cleveland.com/science/index.ssf/2013/04/record-sized_lake_erie_algae_b.html.

284. ANNA MICHALAK ET AL., RECORD-SETTING ALGAL BLOOM IN LAKE ERIE CAUSED BY AGRICULTURAL AND METEOROLOGICAL TRENDS CONSISTENT WITH EXPECTED FUTURE CONDITIONS 2 (2013), *available at* http://www.pnas.org/content/early/2013/03/28/1216006110.full.pdf+html; *see also id.*

protected uses,[285] and fisheries and water resources are protected public trust resources.[286]

In both examples, public trust law and principles could be used to address and remedy harm or seek equitable relief against those causing the harm, or used to force government to take affirmative actions consistent with its duty to protect these public trust uses and resources. And in both instances, the public trust doctrine would be used to mitigate conduct that affects the hydrosphere through its direct affect on the hydrologic cycle. Theoretically, the approach is no different than the California Supreme Court or other courts extending the reach of the public trust doctrine to tributary streams or groundwater.[287] Moreover, the approach is within the traditional scope of the doctrine, because under the earliest cases neither government or private persons could interfere with the public rights of navigation, fishing, or boating. As the scope of public trust resources or public uses of these resources have been extended, the remedies to protect them—damages, equitable remedies, or enforcement of affirmative duties—are extended accordingly.

B. Toward a Public Trust in the Hydrologic Cycle

Water passes through the atmosphere as vapor, precipitates to earth as rain, snow, or something in between, runs over the surface and percolates into the ground, enters the roots of plants through uptake, transpires and evaporates back into the atmosphere, or percolates downward into underground moving lakes or pools or streams known as groundwater or aquifers. Water moves though saturated soil or rock, collects and rises forth as springs or seeps and forms wetlands, creeks, streams, ponds, lakes, and rivers and larger lakes, and runs to the sea, all the while evaporating back into the atmosphere, around and around in a cycle, everywhere in some form and at some rate of movement all at once. At every arc of the cycle, water gives back and absorbs—to and from plants, wildlife, human beings. Water gains and loses through the natural hydrological cycle that flows continuously. As recognized by the eminent 19th century jurist Thomas

285. Constitution Act, *supra* note 142.

286. The following statutes recognize and govern the application of the public trust doctrine in Wisconsin: WIS. STAT. ANN. §§ 30.01 to 30.99 (West 2011)("Navigable Waters, Harbors and Navigation"); WIS. STAT. ANN. §§ 31.06(3(c)) (West 2011)("Regulation of Dams and Bridges Affecting Navigable Waters"); WIS. STAT. ANN. §§ 33.01 to 33.60 (West 2011) ("Public Inland Waters"); WIS. STAT. ANN. §§ 281.11 to 281.35 (West 2011)("Water and Sewage").

287. *Supra* note 186.

Cooley, "water is a moveable, wandering thing, and must of necessity continue common by the law of nature."[288]

In the words of the U.S. Supreme Court in the *Illinois Central* case, nullifying a deed to part of Lake Michigan given by the State of Illinois to a private railroad company, "this trust cannot be abdicated or alienated."[289] It cannot be impaired, not the water, not the public purposes. The principles mean that the resource and its uses are to remain in public control, for the public good and purposes, and without substantial interference or impairment. If the public trust is applied to every arc of the water cycle that affects public trust waters, especially traditional navigable waters, the waters and these uses cannot be subordinated or harmed. If they are harmed or impaired, then the human actions that contribute to or cause such subordination or harm are necessarily limited because of the overarching duty to protect the integrity of the waters and uses for the beneficiaries of this and future generations.[290]

For these reasons, a possible answer is the immediate adoption of a new narrative, with principles grounded in science, values, and policy, that view the systemic threats we face as part of the single connected hydrological whole, a commons governed by public trust principles. The public trust is necessary to solve these threats that directly impact traditional public trust resources like the Great Lakes and its tributary waters. The most obvious whole is not a construct of mind, but the one in which we live—the hydrosphere, basin, and watershed through which water flows, evaporates, transpires, is used, transferred, and is discharged in a continuous cycle. Every arc of the water cycle flows through and effects and is affected by everything else, reminiscent of what Jacques Cousteau once said, "We forget that the water cycle and the life cycle are one."[291]

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288. SIR WILLIAM BLACKSTONE, COMMENTARIES ON THE LAWS OF ENGLAND, BOOK THE SECOND 18 (9th ed. 1783).

289. People *ex rel.* Scott v. Chi. Park Dist. 360 N.E.2d 773, 781 (Ill. 1976).

290. This is not much different that existing case law that is reflected in the California *Mono Lake* and Wisconsin *Lake Beulah* decisions. From a hydrologic cycle point of view, everything is "upstream" and "downstream" and so is necessarily tributary; and the impacts to this cycle that significantly impair or impact directly navigable or other public trust waters, aquatic resources, or protected uses could be shown to violate the public trust. *See Mono Lake*, 658 P.2d at 721*; see also Lake Beulah Mgmt. Dist.*, 799 N.W.2d at 76.

291. BRAINYQUOTE, *Jacques Yves Cousteau*, http://www.brainyquote.com/quotes/quotes/j/jacquesyve204405.html (last visited Jan. 29, 2014).