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The Great Lakes Water Wars, by Peter Annin

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The Great Lakes Water Wars. By Peter Annin. Washington, DC: Island Press, 2006. Pp. xv + 304. $25.95, hardcover.

Journalist Peter Annin's *The Great Lakes Water Wars* is a ripping yarn of regional water policy past, present, and future. The book has few academic pretensions, but it should be must reading for any academic with even a marginal interest in water policy. Although there are a few minor academic nits to pick, they are ancillary to the book's major message: the difficulties of forming an intelligent policy respectful of political boundary lines are exacerbated when dealing with a natural resource that conforms to its own lines. This is especially true when one of the political boundary lines is international.

The book is divided into three sections. The first, "Hope and Hopelessness," sets the stage. The second, "Battle Lines and Skirmishes," offers six case studies. The last, "New Rules of Engagement," brings the story up to the present. The narrative begins by noting that less than one percent of the earth's surface water is "accessible, potable freshwater." This means that as populations continue to grow, the world will be divided into the water "haves" and "have-nots." Water-rich areas will be asked to share, both domestically and internationally. Yet, with population growth, there will be greater demand; "haves" won't have as much to share.

Altogether the Great Lakes contain six quadrillion gallons of water, but annual flows of rain, snow, and ground water renew only about one percent of the total. The balance is a stock that was deposited by melting glaciers. Much of the water extracted from the lakes is ultimately returned; the estimate is that only 1.5 percent of the daily renewable supply is ultimately lost to the system. The level of the lakes has always been a concern. There can be as much as a foot difference in level from year to year, and the difference between the historic high and low is more than six feet. One of the costs is clear; a one-inch drop requires large freighters to pare 270 tons of cargo. The estimated effects of global warming on the Great Lakes are mixed, but most experts expect a decline in lake levels due to reduced winter ice levels and increased evaporation. Annin devotes chapter two to the Aral Sea experiment where, in 1960, a river feeding the sea was diverted for irrigation purposes. It is included as an example of misguided public policy: the experiment resulted in the loss of 90 percent of the sea's volume and 75 percent of its surface area, a situation now considered to be irreversible. As Annin notes, this disaster has been used by ecologists as an example of what could happen, but it is a worst case scenario that seems unlikely in the multi-jurisdictional Great Lakes basin. The chapter seems out of place.

In the final chapter of the first section, Annin talks about several grandiose schemes to divert Great Lakes water elsewhere. One of these schemes, the Ogallala diversion (requiring that water move uphill from Lake Superior to Yankton, South Dakota), was the object of a federal study

commissioned over the objections of Great Lakes politicians who generally oppose any diversion. The study cost millions of dollars and ultimately showed that the diversion would be extraordinarily expensive. One outcome of this study was the formation of the Council of Great Lakes Governors in January of 1982 and, three years later, the adoption of the Great Lakes Charter by eight states and two Canadian provinces. Its purposes were to preserve lake levels, protect the ecosystem, and provide a "cooperative" mechanism to manage the resource on a sustainable basis. Realizing that a gentlemen's agreement was not sufficient protection, the 1986 amendments to the federal Water Resources Development Act provided that any diversion of water outside the Great Lakes basin (and the study of any such diversion by a federal agency) required the unanimous approval of all eight Great Lakes governors.

The six case studies in the second section discuss the history of two previous diversions (Chicago's diversion away from Lake Michigan and the Long Lac and Ogoki diversions in Ontario toward Lake Superior), the request of three towns to divert water (Pleasant Prairie, Wisconsin; Lowell, Indiana; and Akron, Ohio), and the attempt of farmers near Mud Lake, Michigan, to divert water for agricultural purposes. Each of these chapters could stand alone, but together they move the story inexorably toward the final section and the attempt to improve existing policy. The case with which this reviewer is most familiar is Chicago's diversion. Annin falls victim to the myth that the Sanitary District of Chicago was responsible for reversing the Chicago River. Consequently, he begins his story several decades after the river was first reversed. Starting earlier would not change his basic conclusion, but it would add important qualifications.

The final section begins with the attempt of a Canadian entrepreneur to ship freighters full of Lake Superior water to Asia. In the ensuing uproar, the International Joint Commission was asked to study Great Lakes water use. Their report of February 2000 claimed that "if all of the Basin's water uses were considered (including hydropower and the environment) there was no 'surplus' water in the system" (197). Population growth and climate change were leading to a period of "uncertainty." The governors then commissioned what became known as the Lochhead report, which detailed deficiencies in extant water regulations. Consequently, the Great Lakes Charter Annex was produced in 2001 to give the public some idea where the eight states and two provinces were headed. Over the final three chapters, Annin details the development of the instruments that guide water policy in the basin today. Given the international dimension, two accords were finalized in 2005. The first is the *Great Lakes-St. Lawrence River Basin Sustainable Water Resources Agreement.* This replaces the non-binding Great Lakes Charter and is necessary because federal law forbids a treaty between individual states and provinces. The jurisdictions on both sides of the border agree that they will adopt parallel regulations. The second is the *Great Lakes-St. Lawrence River Basin Sustainable Water Resources Compact.* This

is a binding agreement among the eight states and codifies how the governors will meet their obligations under the *Agreement*. These chapters provide an interesting view as to how policy is formed, the compromises that are necessary, and the problems that can arise. In particular, one chapter is devoted to the case of Waukesha, Wisconsin, where a request to draw water from Lake Michigan came amidst negotiations over these two accords.

It is interesting that, at the close of the twentieth century, Annin discusses the Great Lakes as a closed system whose primary natural resource use is water supply. Historically, transportation was a significant rival use, and transportation interests were involved in trying to open that system. In glacial times, three large rivers flowed away from the Great Lakes. Today there is only one, the St. Lawrence, about which little is said; the St. Lawrence Seaway project is not discussed. The other two glacial river valleys were the site of canal construction. The first, the Erie Canal, ran across New York State. DeWitt Clinton officially opened the canal by pouring Lake Erie water into New York Harbor, a ceremony dubbed "The Wedding of the Waters." The second, the Illinois & Michigan Canal, crossed the divide between the Great Lakes and Mississippi River drainage areas and reversed the Chicago River as early as the 1850s. One of the principal reasons the Illinois legislature passed the Sanitary District Enabling Act in 1889 was that a new, larger canal would help complete the Lakes-to-Gulf Deep Waterway. This had been the intent of the original canal proposals that predate the state of Illinois and account for why Illinois' northern border was moved much farther north than that of Indiana.

It remains to be seen how many of these nits matter to Annin's story. When viewed as a transportation resource, there is precedence for considering the Great Lakes basin as part of a larger whole. Quebec's role in Annin's story is suggestive of that larger whole. In the future, what should matter to water policy are costs, benefits, and the sustainable yield. There are some steps for which the benefits appear to be greater than the costs (e.g., metering large portions of Chicago) and some for which the costs appear to be greater than the benefits (e.g., re-reversing the Chicago River). But these all seem trumped by the fact that water usage in the Great Lakes basin is nearing the sustainable yield. Water policy makers must first look within a resource area before they begin to dream across them. Annin's prediction for the future is the "wars" of his title, both within and without the Great Lakes basin. His discussion of how we got to the present is one with which everyone interested in current water policy and anyone interested in future policy formation should be familiar.

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