



Guarding the Great Lakes

Interview with Dan Egan, Author of *The Death and Life of the Great Lakes*

► REBECCA A. HILL

A native of Green Bay, Wisconsin, Dan Egan spent most of his childhood summers at his grandparents' homes, one on the Dora Peninsula north of Green Bay and the other on the shores of Lake Michigan. He played in little boats and fished off the docks.

After college, he migrated west and worked as a reporter in Yellowstone National Park, Idaho, and Utah. What he found was that natives there did not notice the mountains after a while. They did not see them. He headed home to Wisconsin and began his work at the **Milwaukee Journal Sentinel** where he is still today. There, he noticed that people took the Great Lakes for granted. Not so with Egan. After all his time in the mountains, he saw the lakes with entirely different eyes. He started talking to and writing about the people who lived around and made their living on the Great Lakes. Much of his new book, **The Death and Life of the Great Lakes**, comes from these stories written for the **Milwaukee Journal Sentinel**.

When reading Egan's book, you get a real feeling about the Great Lakes and their majesty. Made up of five lakes—Ontario, Huron, Superior, Erie, and Michigan—these expansive freshwater bodies span 95,160 square miles, border Canada and the United States, and supply 20 percent of the world's freshwater.

Once there was a thick glacier where the lakes are now. As the glacier slowly melted and moved to Canada, it left large depressions in its wake. These depressions filled with water and are the Great Lakes we enjoy today. Some 30 million people live on the lakes with the lakes hosting more than 3,500 species of plants and animals. What Egan found was that not only are the lakes habitable for over 170 species of fish, they are now home to 190 species of unwelcome guests—invasive and nonnative species—changing the ecosystem of the Great Lakes, often for the worse.

RH: *In your book, you talk about the lakes as being once “ecologically naïve.” What does this mean, and in what state are the lakes now?*



DAN EGAN

DE: When you think of the Great Lakes as they once were, they were as isolated as islands in the middle of the ocean with their own species and vulnerable to outside disturbances. The lakes were and still are so vast, but then they were hemmed in by the Subcontinental Divide on the western end and Niagara Falls on the eastern end. Nothing could migrate into the lakes until we started building channels and canals to bypass these natural barriers. As a result, shipping commerce began to breach those physical barriers.

The lakes today are not what they once were, nor is the landscape. We have turned the forest into cornfields. We have turned the lakes into recreational fisheries. They have suffered mightily from industrial pollution which has been dealt with to some degree by the 1972 Clean Water Act's passage. The biological pollution and the nonnative species that have invaded the lakes have really rattled things. While the lakes are beginning to establish some

equilibrium, the invaders have not stopped coming, despite our efforts to police shipping commerce. The door is still open at the St. Lawrence Seaway.

RH: *Once a non-native invasive species enters the lake systems and tributaries, it seems impossible to eradicate. Is it impossible? Do we have adequate detection systems to help identify these species?*

DE: A non-native species like the quagga or zebra mussel, goby, or alewife fish is pretty much impossible to eradicate. It is living pollution that does not decay or disperse. It breeds. So, the consequences can be every bit as severe as they were pre-Clean Water Act when industries were leaving all sorts of toxic stew. Now, these invasive species create their own toxic stew. Prevention is everything when it comes to invasive species

management. (Note: Current prevention management includes electric barrier fences, dumping and decontaminating ship ballast water, dams, and DNA tracking measures.) Hot spots for invasive species do exist because of shipping locations or fertile breeding areas like Lake Erie or Lake Superior. We know that they exist, but it is better not to let them get here in the first place. It is a lot like finding a cockroach in your kitchen. You can kill it, but you cannot get rid of it.

RH: *Are the lakes a different type of ecosystem now or just an ecosystem that is adapting to the onset of invasive species?*

DE: I think that the lakes are a different type of ecosystem, because they have learned to adapt. You can make the argument that a lot of this would happen because nature is always going to go ahead and do its thing. Because of how we have managed the lakes and commerce on the lakes, however, we have sped up these changes. Ecological changes are now happening within decades instead of in millennia.

RH: *In your story about Ken Koyen's fishing of whitefish, Koyen makes the statement that he believed that evolution is at work. What are your thoughts on this? (Note: A full-time fisherman from Wisconsin's Washington Island, Koyen was the only commercial fisherman who remained and fished for whitefish, a fish that had been decimated by quagga and zebra mussels in the 1990s. In 2005, he found that the whitefish were returning, because they had begun to eat the mussels and then the round gobies, both invasive species from the Caspian and Black Seas.)*

DE: I am not a biologist; however, it only makes sense to me that if you introduce change fast, there is going to be a reaction to that change. The whitefish population perfectly represents that change. Now that they have run out of their food, they are turning to the gobies for a food source. Biologists will talk about phenotypic plasticity (i.e., the ability of an organism to alter its phenotype in response to environmental influences), and the changes are in the range of the species' historical ability. Seeing this happening so fast, and if the only ones eating the fish are the ones surviving, well, that sounds like evolution to me.

RH: *Has the freighter traffic on the Great Lakes declined significantly in recent years?*

DE: The overseas traffic component of the Great Lakes traffic is not that significant. It is big, but it is relatively small in terms of overall shipping in the Great Lakes. Still, total shipping tonnage in the Great Lakes is like less than 5 percent. These are the ships that bring us the stuff we do not want. They are the reason that we now have 190 nonnative species in the Great Lakes.

RH: *Is it ever possible for the St. Lawrence Seaway to close down, especially since freighter traffic has decreased?*

DE: These channels make a lot of sense from a navigation point of view, but not from an ecological point of view. I do not think that they are mutually exclusive. You can have navigation and adequate protections for the lakes, but right now we do not have that.

Decontamination of freighter's ballast water has gotten better much like wastewater treatment plant technology has gotten better and evolved. If we cannot solve these issues with technology, however, then we should not let the boats in until it can be figured out. I am not saying that we should shut down the channels, but

I think that it is worthy of a detailed cost-benefit analysis, so that we know what we are giving for what we have already given up. Right now, those costs and benefits do not seem balanced.

Plus, the people who are hurt and who pay for these costs is borne out by tens of millions of people. The number of people who reap benefits, the industry, is relatively tiny. They profit because their remuneration is so concentrated; plus, they have a louder voice and can make a stronger argument for traffic within the Great Lakes. One of the goals of the book is to give these millions of people a sense of the Great Lakes so they can be more informed and can lean on polluters to do better.

RH: *From a climate change perspective, how critical do you think our freshwater issues are at this point?*

DE: If you look at the globe, the Great Lakes are a trove of fresh water like nothing else. There will be all kinds of pressure, some economic and some environmental. We are sitting on a very, very valuable thing here, and the key is to recognize it and move forward appropriately. While that does not mean that you cannot have industry on the lake or navigation, water quantity is one issue while quality is another issue. Just look at what happened in 2014 to Toledo when they lost their fresh drinking water for four days because of phosphorous pollution. We must get a handle on that as well as agricultural runoff into the lakes.

RH: *Do you feel like your book would be a good reference or teaching book on the Great Lakes for an environmental science class?*

DE: My goal with the book was to make it accessible and readable. I do not have a science background which is an asset and a problem. I thought that the best way to tell this story was through the personal experiences and emotions of the people who have lived and historically influenced the lakes. I believe that that the book is an excellent introduction to the Great Lakes and think that an environmental science teacher could teach it chapter by chapter and then drill down on the more technical points through other resources. ■

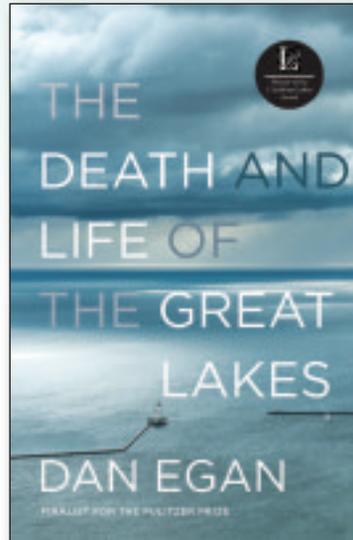
BIBLIOGRAPHY

Egan, Dan. *The Death and Life of the Great Lakes*. W.W. Norton, 2017. 364p. \$27.95. 978-0-393-24643-8.

GREAT LAKES ARTICLES BY DAN EGAN

Egan, Dan. "A Watershed Moment: Great Lakes at the Crossroads." *Milwaukee Journal Sentinel*. <http://archive.jsonline.com/nes/wisconsin/great-lakes-268550802.html>

Egan, Dan. "The Cancer of the Great Lakes." *Nautilus*. March 2, 2018. <http://nautil.us/issue/46/Balance/the-cancer-of-the-great-lakes>



Rebecca A. Hill is a librarian and freelance writer. She writes on science education, education, science, parenting, library, literacy, and other issues. She has been published in several national magazines like *Robot*, *Robotic Trends*, *School Library Journal*, *Teacher Librarian*, *Book Links*, *School Family Media*, *Parent Map*, *Purdue University* publications, and other publications.



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