RIPPLE EFFECT

With law students actively participating, the Water Law and Policy Initiative is building a strong record of shedding light on major issues.

Sometimes, gritty realities are no more than that, gritty. But they also can be central to valuable and ambitious work.

Gritty. Valuable. Ambitious. Those are good words to capture Marquette Law School's Water Law and Policy Initiative, which in the fall of 2025 is marking its 10th anniversary. The initiative grew from the sturdy roots of the Law School's previous commitment to offering courses introducing students to water law. Then in 2009, a conference sponsored by the Law School on the future of Milwaukee as a hub of water technology and economic development helped demonstrate the school's ability to galvanize attention to water issues more generally.

Yet the key date was 2015, shortly after the new president of Marquette University, the late Michael R. Lovell, issued a general call for the university to become more deeply engaged in studying and helping solve the world's water problems. The Law School responded. In particular, David A. Strifling joined the full-time faculty and became director of the school's newly denominated Water Law and Policy Initiative.

This was no mere rebranding. Professor Strifling has led an expansion of the program's work to include a roster of conferences in Eckstein Hall on important water law and policy issues, collaboration with other experts at Marquette University and beyond, receipt of major external grants to support research, and publication of the resulting scholarship in academic journals. In aspects of its work, the Water Law and Policy Initiative has had an affiliation with the Law School's Lubar Center for Public Policy Research and Civic Education since the center's creation in 2017.

Yet at the heart of the water work, Strifling says, has been the Law School's academic program—i.e., educating law students. For example, the Water Law and Policy Initiative's work has created a series of cutting-edge research and writing opportunities for about 60 law students during the past decade. "What we've accomplished would not have been possible without them," Strifling said. And the students have learned a great deal.

Reflecting on his experience as a student researcher, Bryce Ebben, L'25, said, "My coursework and research have helped me understand the technical complexities of water governance and its broader societal impacts." Ebben sees this learning as "connecting directly to environmental permitting and due diligence," which are part of transactions he has already seen in practice. He credits his water-related coursework and research with "sharpening my ability to analyze regulatory frameworks, engage with technical science-law intersections, and understand the

institutional dynamics that shape environmental decision-making."

Jacob Dalton, L'24, also worked on water policy issues as a student, coauthoring an interdisciplinary paper with Strifling and an engineering student related to the use of nanotechnology in drinking water treatment applications. Their paper subsequently appeared in the *Georgetown Environmental Law Review*. "The water law research I conducted broadened my horizons into topics I had not had any exposure to before," Dalton said. "Learning early in my career not to artificially limit the parameters of my research has helped me develop strategies to approach legal issues."

Let's briefly go back to the adjectives at the start of this piece to consider the Water Law and Policy Initiative's record.

Gritty: Tackling important issues in water use and policy requires you to deal with matters such as sewage and cow manure. The initiative has done this gritty work with academic rigor, good thinking, and a continuing focus on evaluating public policy.

Valuable: In working to shed light on major issues facing not only Wisconsin but the nation, the initiative has been awarded or has partnered in more than a dozen different grant awards totaling nearly half a million dollars. The range of sources for the awards has included the federal government and has enabled Strifling to collaborate with other researchers from around the nation. Conferences at the Law School have addressed subjects such as drinking water quality, the impact of the Great Lakes Compact, reuse of water, and the sometimes-differing interests of agriculture and environmental protection.

Ambitious: Strifling, who is a credentialed engineer as well as a lawyer, has worked with both professional associates and law students to address a long list of complicated and sometimes controversial issues. Name a forefront issue in water policy, and Marquette University Law School's Water Law and Policy Initiative has been more than willing to engage with it.

Professor David Strifling (left) meets in his office with students involved in the Law School's Water Law and Policy Initiative, including Nigel Blake and Alana Borman.

Two recent conferences at Eckstein Hall provide instructive examples of this work.

Resolving the Tension Between Agriculture and Water Quality

Wisconsin is known for both its invaluable array of water resources and its heritage as an agricultural powerhouse. While the connection is obvious, these two aspects of the state's identity also can be in tension with one another. The federal government's most recent National Water Quality Assessment concluded that agricultural runoff is the leading cause of adverse water-quality impacts on rivers and streams, as well as the third-leading cause for lakes. On March 18, 2025 (coincidentally, National Agriculture Day), the Water Law and Policy Initiative convened a program to help illuminate a path forward for agriculture and water to coexist. The speakers at the event delivered a generally hopeful message anticipating improved cooperation among farmers, affected citizens, the conservation community, and state and local governments.

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The event's keynote speaker, Marin Skidmore, focused on Wisconsin dairy farms and presented the findings of her team's study of the effectiveness of local (county-level) regulations targeted at controlling nonpoint source pollution from these farms (pollution, that is, that doesn't come from a single discrete source such as a pipe). As explained by Skidmore, assistant professor in the Department of Agricultural and Consumer Economics at the University of Illinois Urbana-Champaign, nonpoint source pollution by definition consists typically of diffuse runoff across broad landscapes. In the case of agriculture, that runoff may carry with it fertilizer or manure that has been applied to farm fields, and it will deposit those pollutants in surface waters.

More specifically in Wisconsin: Skidmore, a native of the state, acknowledged that agriculture is a major economic and cultural force in Wisconsin, yet noted that it also often creates serious water-quality problems resulting from the "enormous nutrient [manure] output coming from dairy production." That can impact recreational activities and even public health, she said. The pollutant load can cause hypoxia, or "dead zones," in surface waters and, in some Wisconsin communities, can contaminate drinking water supplies with elevated levels of nitrates and bacteria. This has led to substantial community opposition to large-scale "concentrated animal feeding operations"—defined by state law as a feeding operation with 1,000 "animal units" or more—in some parts of the state.

Skidmore and her team set out to find a way to test Wisconsin's efforts to manage the pollution's impacts while maintaining an industry so important to the state. Nonpoint source pollution is exceedingly difficult to control. It isn't well regulated under federal or state laws, including the Clean Water Act, Skidmore said, partly because "we don't have a reliable way to map and quantify the amount of pollution coming from one single farm." As a result, policymakers can't use traditional regulatory tools such as command-and-control regulation, pollution taxes, or a cap-and-trade system.

But there is hope, Skidmore said, because "Wisconsin is innovative." Its leaders have tried solutions that other states haven't. Skidmore cited the state's farmer-led watershed groups, farmland preservation program, and water-quality trading program as examples. But the program that especially captured the attention of Skidmore and her team was the state government's decision to delegate the option to regulate manure management to county governments—an approach unheard of in other states. The delegation was intended not as a substitute for state authority but as a complement or addition to it. Perhaps the counties could serve as "laboratories of democracy" for the state, in the same way that the states have sometimes done for the federal government, in the famous (Brandeisian) phrase.

So what happened when counties got involved in writing and enforcing local manure management ordinances? By comparing many different county ordinances—and the resulting water-quality benefits (or lack thereof)—Skidmore's team found that some aspects of the ordinances had a measurable impact on water quality. The most significant positive impact resulted from adding a requirement that farmers prepare a "nutrient management plan." That effectively means a plan for the rate, timing, and method of nutrient application to farm fields. If farmers fine-tune those variables, they can dramatically reduce pollutant runoff to surface waters, Skidmore said, because a lot of the pollution problem comes from nutrient overapplication above what the crop needs. That leaves the

excess nutrients vulnerable to precipitation-induced runoff.

Brian Weigel, the deputy administrator for the Division of External Services at the Wisconsin Department of Natural Resources (DNR), noted at the Eckstein Hall conference that state governments sometimes have been caught in the middle of struggles among farmers, affected citizens, and environmentalists. "There are myriad opportunities for change," he said, but nothing will happen until the various factions move forward together. DNR is trying to do its part, he said, by developing an office of agriculture and water quality with two goals: trying to communicate effectively with stakeholders and connecting with governmental partners in neighboring agricultural states to explore best practices for science and policy. But, he said, society and culture need to change, with consumers demanding more sustainably produced food, in order to really drive reforms.

"Farmers are the original environmentalists," because they see firsthand the impacts of pollution on nearby drinking water sources, said Jason Mugnaini, executive director of Government Relations at the Wisconsin Farm Bureau, a nonprofit organization based in Madison. Mugnaini predicted that the farm community in the state will soon enter a time of transition, with farmers open to new conservation practices in part because of government-funded incentive programs. He conceded, though, that some farmers are reluctant to seek compliance assistance because of concerns over enforcement actions they fear might result.

Sara Walling is the director of the Water and Agriculture Program at Clean Wisconsin, an environmental advocacy group that has often squared off in litigation with agricultural interests over water-quality concerns. At the conference, Walling emphasized the need for a collaborative approach that includes both farmers and affected citizens. "We recognize that there are a lot of farmers out there who are very interested in doing what they can to change the impacts they are having on water quality," she said.

Will Water Reuse Come to the Midwest?

A different issue was the focus of another conference at the Law School: the rising trend toward "water reuse" in arid parts of the country and, increasingly, in humid East Coast climates as well.

Existing drinking water sources are under increasing strain from overuse, climate change, and other threats. Water recycling, also known as water reuse, may play a significant role in creating the sustainable cities of the future. The federal Environmental Protection Agency has defined water reuse as the process of harvesting water from a variety of "used" sources, such as municipal wastewater, industrial process or cooling water, stormwater, agricultural runoff, and return flows; treating it; and reusing it for beneficial purposes.

Already, millions of people around the country are being "asked" to drink recycled water, which arrives to them in one of two ways: through an indirect process, in which treated wastewater is discharged to an environmental buffer such as groundwater or surface water and is later taken into the water distribution system, or through the direct pumping of treated wastewater into the water distribution system without an environmental buffer. At the spring 2024 event in the Law School's Lubar Center, several experts discussed the history and future of such technologies, debating whether they are likely to emerge in Wisconsin or, instead, to remain generally limited to drier climates.

Noted author and journalist Peter Annin drew on his book, *Purified: How Recycled Sewage Is Transforming Our Water* (2023), to describe the significant water crisis facing many parts of the country. Annin cited only two realistic options for "new" water supply—desalination and reuse. Water reuse is the far more sustainable option, he said.

Annin discussed a number of historical case studies involving efforts by communities to introduce recycled water into their water supply portfolios. Some were successful (Orange County, Calif.), others less so (neighboring San Diego County, at least at first). But Annin explained that careful examination of the U.S. Drought Monitor reveals that water shortages are a problem even outside the arid West. Thus, water-reuse projects have been implemented or at least tried in more humid parts of the country, too, including Norfolk, Va., and Tampa, Fla., among other places.

In reviewing the lessons learned from all these efforts, Annin identified several keys to successful implementation of water-recycling projects. These included reliable technologies to ensure public safety, rigorous

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– Thais Marques, 3L

monitoring of the water produced, and effective strategies for communicating with the public.

In Wisconsin, at least so far, such technologies are more a matter of interest than necessity. "Nobody recycles water because it's cool," said Theera Ratarasarn, a panelist reacting to Annin's presentation. Ratarasarn is chief of the Public Water Engineering Section for the Drinking Water and Groundwater Program at the Wisconsin Department of Natural Resources. Instead, he continued, they do it because they have no other choice. In Wisconsin, by contrast, "everywhere you look, you find water," Ratarasarn said. So recycling isn't yet necessary here. In fact, it likely would run afoul of a Wisconsin legal requirement that the public drinking water supply come from "the best available source practicable." As a result, Wisconsin regulators are more concerned about other pressing issues such as PFAS, lead, and nitrate pollution.

Another panelist, Rachel Havrelock, professor of English and director of the Freshwater Lab at the University of Illinois at Chicago, observed that most people are accustomed to "single-use water," and this view drives societal discomfort with water recycling. In fact, she said, water recycling more closely emulates nature and the multiple-use water cycle. In most places, she said, there is already de facto water reuse, with treated wastewater returned to surface water and soon thereafter reclaimed for drinking water treatment a short distance away. She cited a "groundwater emergency" in many parts of the Midwest, including Waukesha, Wis., and Joliet, Ill. "Water reuse is part of climate change adaptation," Havrelock concluded, and the "legal world is absolutely vital at this juncture" to regulate the practice.

Research on Water Reuse

On a research track parallel to the public outreach reflected in the just-described conferences, the Water Law and Policy Initiative has undertaken two different grant-funded projects dealing with various aspects of water reuse from a more national perspective. Third-year law student Thais Marques, who has conducted research in one of the projects, sees broader benefits. "My experience as a student researcher on water law has made me a more confident professional and has allowed me to dive into a rich field with both environmental law and practical problem-solving," Marques said.

One of Strifling's papers, later published in the *Washburn Law Journal*, undertakes a comprehensive exploration of the water-reuse process, reviewing technical, sociocultural, and regulatory barriers to its broader implementation. The article explores the technical underpinnings of water reuse, examining a variety of possible technologies.

That's just the beginning. The article then reviews some of the available water-reuse technologies deployed in existing projects around the world, covering a variety of commercial, industrial, municipal, and residential applications and identifying advantages and disadvantages in these contexts. Next, the piece moves to the sociocultural barriers to water reuse, analyzing, in turn, concerns about public health and safety, adverse public perception, lack of knowledge about the process, and simple distaste. Finally, it examines the regulatory regimes in several states, as water-reuse regulation is typically a matter under the control of individual states. These include the arid states of Arizona and California and the comparatively water-rich states of Minnesota and Wisconsin. The effort is to discern best practices for governing this emerging technology.

Strifling's analysis concludes that all of these hurdles—technical, sociocultural, and regulatory—must be cleared for water reuse to become a viable solution to the world's water supply problems.

These hurdles are substantial. Any successful effort to overcome them must involve aggressive funding to research and develop technologies that make water recycling feasible; must include a robust water quality-monitoring program; must operate within an adaptive regulatory framework; and must engage all stakeholders and the public through an outreach and education program.

In a variety of contexts, jumping hurdles has become routine for the Water Law and Policy Initiative during its first 10 years. Strifling envisions a future in which the water initiative both continues to clear the hurdles and further accelerates toward the goal of establishing the Law School and, more broadly, Marquette University as a center for study, exploration, discussion, and education concerning this critical element for all life. "I'm looking forward to seeing what the next decade will bring," he says. ■