



State of the Great Lakes Blue Economy 2026

Anchored by



GREAT LAKES RENEW

Analysis led by



For far too long, the Great Lakes region has taken our generous share of the world's freshwater for granted. Today, we can no longer afford to ignore this simple reality: abundant does *not* mean infinite.

From emerging contaminants like PFAS to growing industrial demand fueled by the rapid expansion of AI and data centers, we are watching in real time as modern pressures on our water resources intensify. These mounting challenges remind us that water is not only the foundation of healthy communities and ecosystems, it is also an increasingly valuable economic asset. Protecting it will require sustained investment in the technologies, policies, and practices needed to preserve this resource for generations to come.

We are living through a pivotal moment as we confront the long-term capacity of our water systems to sustain communities and economies while supporting the reshoring of manufacturing and high-tech industries critical to national security. The need to understand the present and future value of our water resources has never been more urgent.

The foundational requirement for the next era of economic growth is a secure, strategic, and circular water economy that makes more efficient use of not only water itself, but of the many useful materials found in our wastewater, including critical minerals and materials, nutrients, and energy. The Great Lakes region's unique innovation strengths

point to four outsized market opportunities covered in this report: PFAS sensing and destruction, critical minerals and materials recovery, nutrient recovery, and water-energy nexus technologies.

The data in this report reveals a powerful truth: the Great Lakes region is not merely participating in water innovation, we are uniquely positioned to lead it. The blue economy already supports **25% of our region's GDP** and generates more than **\$1 trillion in economic activity**. At the same time, our region produces more than 20% of all U.S. patents in critical fields such as wastewater treatment and materials separation, far exceeding our overall share of national patent activity.

The Great Lakes region is primed to become a global hub for the blue economy. Whether you are an investor, innovator, policymaker, or economic development leader, we invite you to use this report as a guide to inform strategy, investment, and action. Together, we can accelerate the transition from a linear to a circular blue economy, solve pressing global water challenges, and create lasting economic prosperity for the people and communities that call the Great Lakes home.

The Great Lakes region is not merely participating in water innovation, we are uniquely positioned to lead it.

The Great Lakes is home to a \$1 trillion dollar economic engine fueled by water. This report unpacks the data-driven reality of water's crucial role in our region's economic competitiveness and security, and examines the specific strengths of each state — Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin. By tracing ten years of employment, investment, and innovation data, we highlight our region's innovation strengths while identifying opportunities in need of leadership and investment, including water-energy nexus, PFAS, critical minerals and materials recovery, and nutrient recovery technologies.

This analysis underscores a critical reality: the Great Lakes region possesses the scale of innovation and ingenuity to compete with the world as a water solutions provider.

By shifting the narrative from internal competition to global market leadership, this report serves as a strategic blueprint for investors, innovators, policymakers, and economic development leaders looking to capture and scale high-potential opportunities over the next decade.

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About Current

Current is an independent nonprofit water innovation hub, founded in Chicago in 2016, with a mission to grow a circular blue economy, accelerate water innovation, and solve pressing water challenges. Current collaborates with industry, innovators, communities, nonprofits and governments to advance innovative water technologies and policies that boost our economy while protecting our water resources. In 2024, Current was designated one of nine Regional Innovation Engines by the U.S. National Science Foundation to lead **Great Lakes RENEW** (Recovery of Energy, Nutrients, critical Elements, and Water). To date, Current has helped raise over \$123.2M for regional water innovation and economic development, supported 19 R&D projects, 15 pilots, and 110+ startups, and engaged more than 60,000 people through events and convenings.

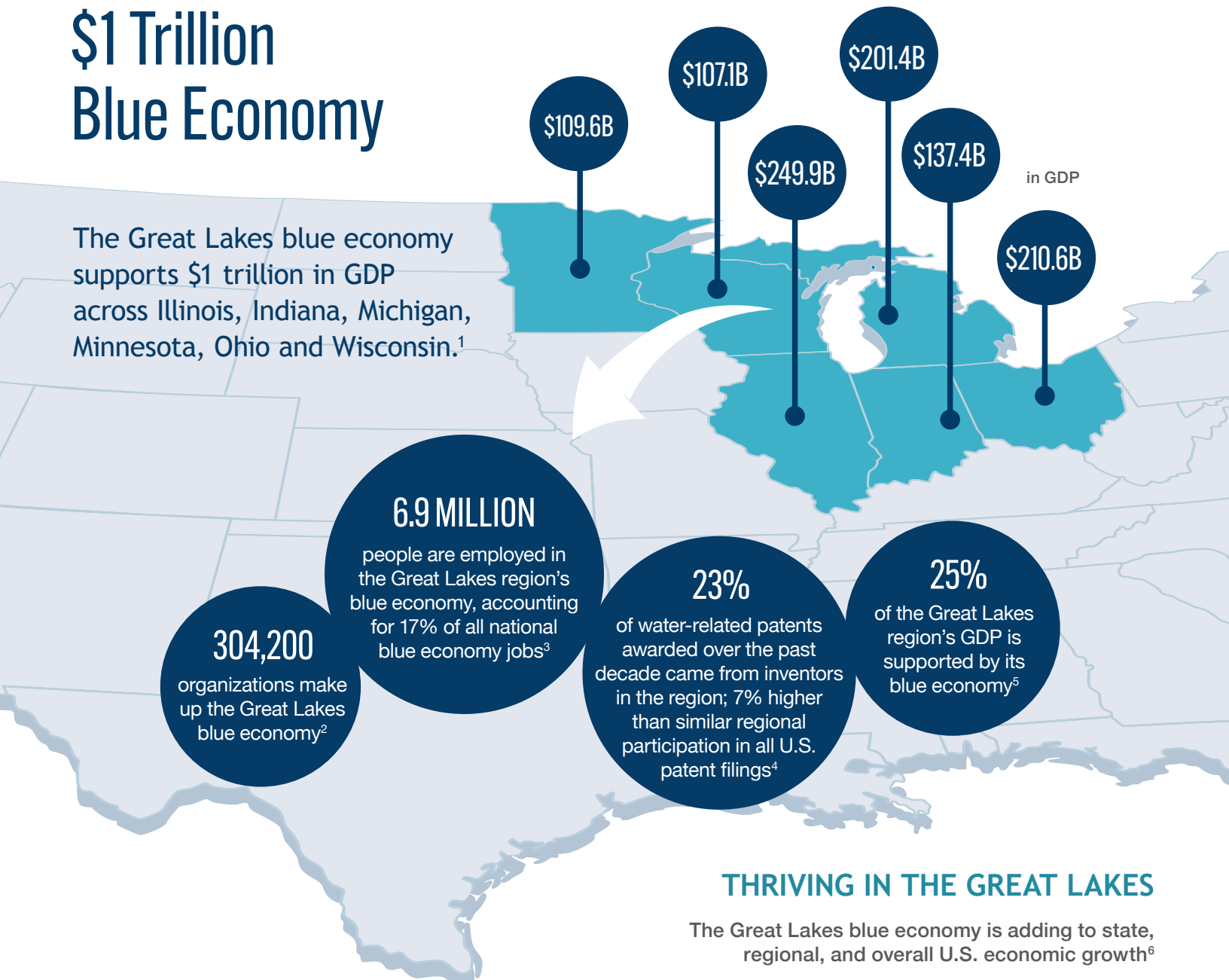
This material is based upon work supported by the National Science Foundation under Cooperative Agreement No. 2315268.



SUPPORT US

\$1 Trillion Blue Economy

The Great Lakes blue economy supports \$1 trillion in GDP across Illinois, Indiana, Michigan, Minnesota, Ohio and Wisconsin.¹



THRIVING IN THE GREAT LAKES

The Great Lakes blue economy is adding to state, regional, and overall U.S. economic growth⁶

	IL	IN	MI	MN	OH	WI	Region	Percentage of U.S. Total
Establishments	74,800	35,700	60,100	38,200	62,900	32,500	304,200	15%
Employment	1,548,500	947,800	1,294,900	715,700	1,560,400	786,400	6,853,600	17%
Wages (\$ billions)	\$106B	\$58B	\$85B	\$47B	\$89B	\$45B	\$431B	16%
GDP Contributions (\$ billions)	\$249.9B	\$137.4B	\$201.4B	\$109.6B	\$210.6B	\$107.1B	\$1.016T	16%

¹ GDP contribution estimation method in Methodology, page 20. ² Source: BLS Quarterly Census of Employment and Wages, 2024. Private sector only. ³ Source: BLS Quarterly Census of Employment and Wages, 2024. Private sector only. ⁴ Source: For CPC Subclass codes B01D and C02F. By state of lead inventor, patents awarded January 2015 through September 2025. Assignee organization may be outside the Great Lakes region. ⁵ Source: GDP contribution estimation method in Methodology, page 20. ⁶ Source: BLS Quarterly Census of Employment and Wages, 2024. Private sector only.

What is the Blue Economy?

The blue economy⁷ is an interconnected supersector for which water is a critical market driver. The blue economy includes:

THE WATER CLUSTER: The collection of companies and organizations that develop and provide technologies, products, and services to manage the movement, quality, and use of water.

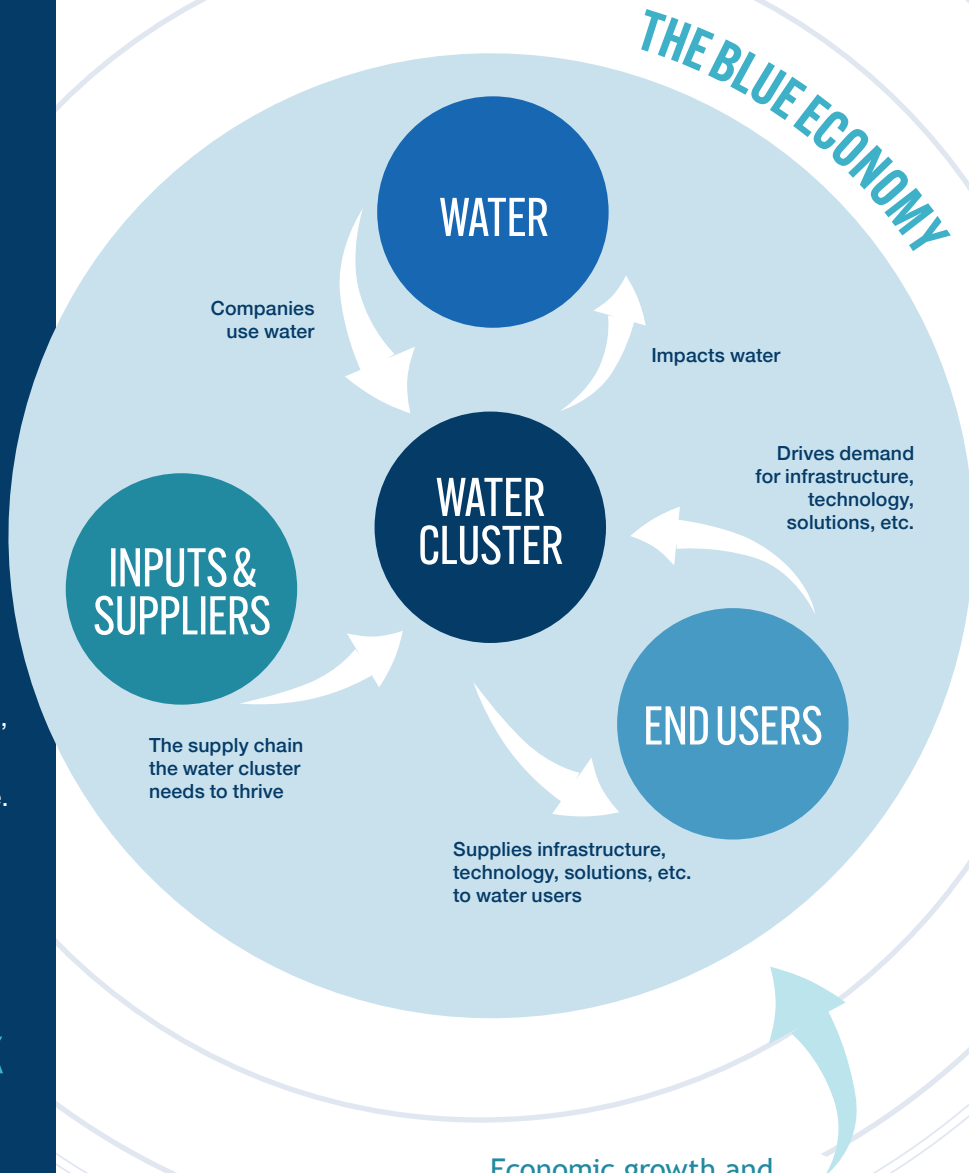
INPUTS AND SUPPLIERS: Companies and organizations that provide essential products and services to the water cluster and end users.

END USERS: Companies and organizations in industries that drive demand for both water and water solutions, including manufacturing, computing and data storage, agriculture, energy, and more.

And WATER ITSELF: An economic, environmental, and cultural resource.

An Economic Framework

This report examines the economy through two lenses: the blue economy and the water cluster. Understanding these definitions will help clarify the units of analysis used throughout the report to assess our region's economic landscape.



Economic growth and environmental sustainability are often framed as adversarial goals. But a

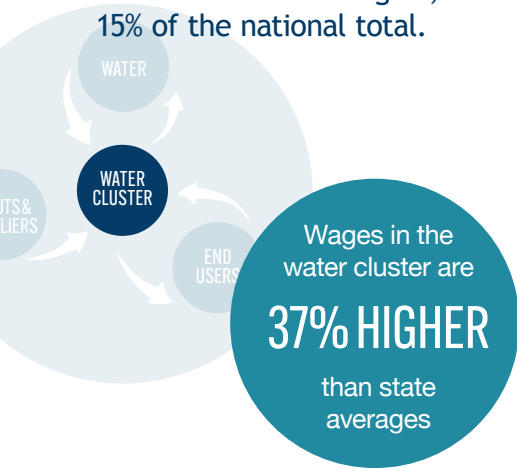
CIRCULAR BLUE ECONOMY

turns waste into wealth, generating economic opportunity that benefits both people and the environment.

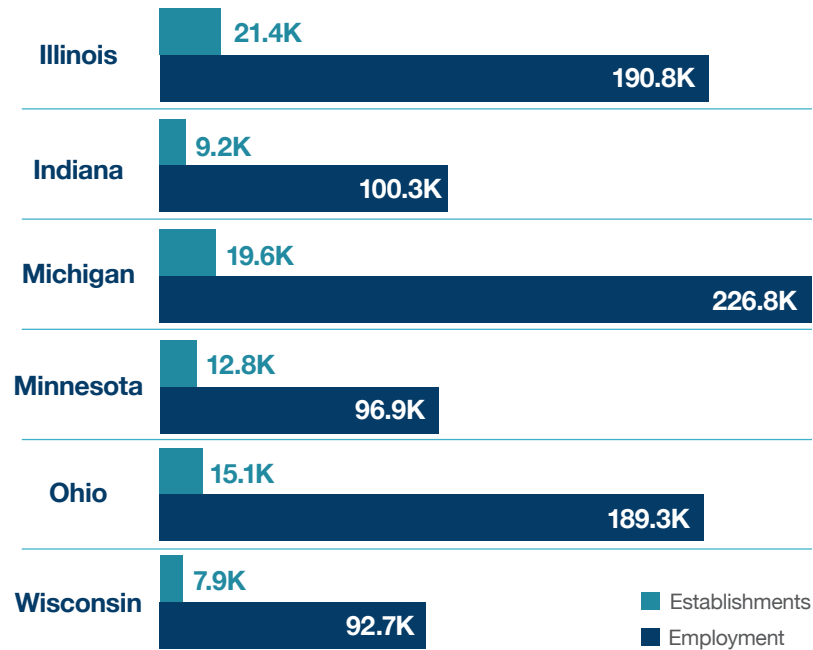
⁷ These definitions, as well as their mapping to specific NAICS codes, were developed by authors of the *Upstream Illinois: Strategies to Boost Illinois' Blue Economy* (2023). There are many definitions for the blue economy developed by organizations across the U.S. and the world; many of them are also broad, and they sometimes focus on marine or ocean economies. This definition was used to guide economic development efforts within the Great Lakes region. It is expected that over time, the definition may need to evolve as the uses of water—and the needs of end users—evolve.

Water Jobs: Strong Growth, Strong Wages

The water cluster, a subset of the larger blue economy, supports **896,700 jobs** in 86,000 private sector establishments (e.g. offices or manufacturing facilities) across the six states in the Great Lakes region, or 15% of the national total.



Water cluster size in six Great Lakes states⁸



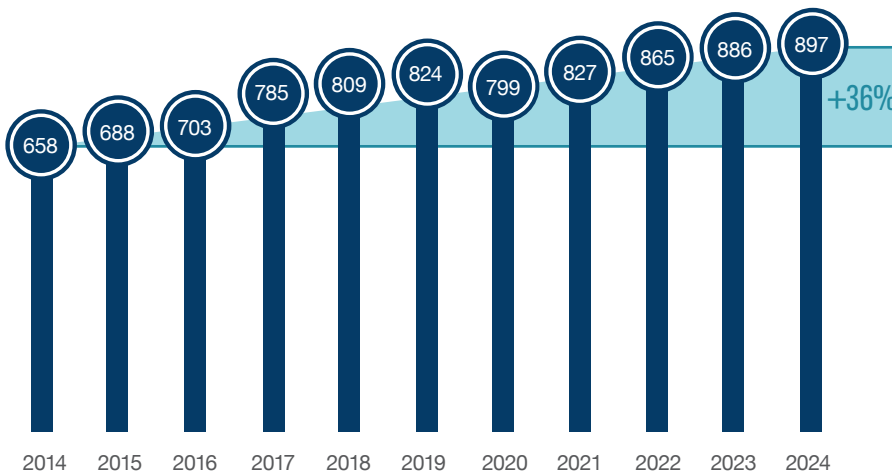
Michigan, Illinois and Ohio have the largest share of jobs



JOB AND WAGE GROWTH IN WATER CLUSTERS OUTPACES REGIONAL TRENDS

The water cluster constitutes an estimated **5% of regional GDP**. Jobs and wages have grown faster in this cluster compared to the overall regional trends.

Regional private sector water cluster jobs, in thousands⁹



Job and wage growth in regional and national sectors, 2014-2024¹⁰

	Jobs	Wages
Regional private sector	↑ 7%	↑ 55%
Regional water cluster	↑ 36%	↑ 96%
National private sector	↑ 15%	↑ 48%
National water cluster	↑ 42%	↑ 110%

⁸ Source: BLS Quarterly Census of Employment and Wages, 2024. Private sector only. GDP contribution estimation method in Methodology, page 20. ⁹ Source: BLS Quarterly Census of Employment and Wages, 2024. Private sector only. ¹⁰ Source: BLS Quarterly Census of Employment and Wages, 2024. Private sector only.

Leading in Treatment and Separation Patents

From 2015 to 2025, the Great Lakes region catalyzed a larger concentration of **innovation technologies** to separate materials and treat water, wastewater, sewage and sludge.

5,171

Patents related to water technologies in the last 10 years.¹¹

23.1%

The region received **23.1%** of the nation's separation patents and **21.1%** of the nation's wastewater treatment patents, compared with just **15.5%** of all patents.¹²

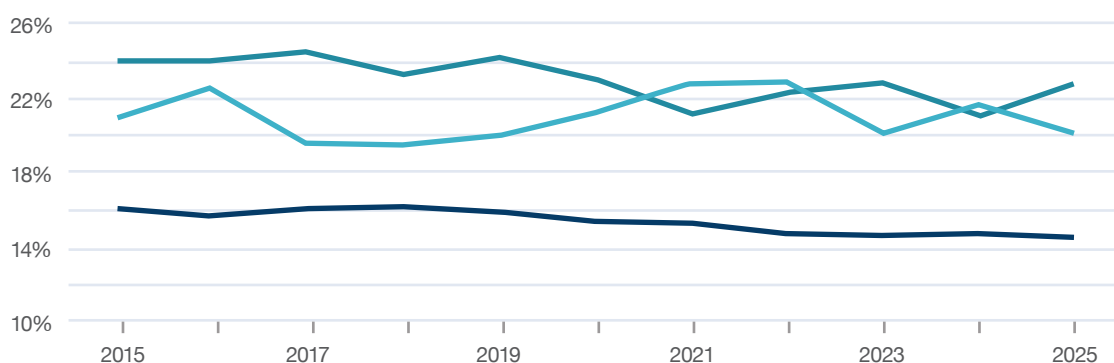
21.1%

4 of top 10

Four Great Lakes states — **Illinois** (4th), **Minnesota** (6th), **Ohio** (7th), and **Wisconsin** (10th) — are in the top 10 for water treatment and three Great Lakes states — **Illinois** (4th), **Minnesota** (6th), and **Michigan** (7th) — are in the top 10 states for patents related to separation of materials.¹³

Percentage of U.S. patents awarded to lead inventors in the region

■ Separation of materials
■ Treatment of wastewater
■ All patents



State-by-state breakdown of patents¹⁴

Patent category		IL	MN	WI	MI	OH	IN
Separation of materials (B01D)	Patent count	1,068	916	471	753	502	361
	Percentage of U.S. patents	6.1%	5.2%	2.7%	4.3%	2.9%	2.1%
	State rank	4	6	13	7	12	16
Treatment of water, sewage or sludge (C02F)	Patent count	288	193	170	144	220	85
	Percentage of U.S. patents	5.5%	3.7%	3.3%	2.8%	4.2%	1.6%
	State rank	4	8	10	12	7	21
All patents	Patent count	51,298	41,628	24,019	61,729	41,177	21,418
	Percentage of U.S. patents	3.3%	2.7%	1.5%	4.0%	2.6%	1.4%
	State rank	7	11	20	6	12	21

¹¹ See Methodology, page 20. ¹² See Methodology, page 20. ¹³ See Methodology, page 20. ¹⁴ Water technology patents defined as patents in CPC Subclasses B01D (Separation) and C02F (Treatment of Water, Wastewater, and Sludge). Analysis by state of lead inventor, patents awarded January 2015 through September 2025. Assignee organization may be outside the Great Lakes region.

Venture Capital Investment in the Great Lakes Region

From 2015 to 2025, the Great Lakes region received only 4% of the nation's venture capital investment in the water cluster, despite being home to 11% of venture-backed water cluster companies.

237 venture-backed companies in the water cluster raised \$1.3 billion, supporting over 4,700 jobs. The Great Lakes region has 11% of the nation's VC-backed water cluster companies and accounts for 4% water cluster VC raised.

Water innovation is spread across regional metro areas (see map below); it is not concentrated into a single city or metro.

Regional leaders in capital raised

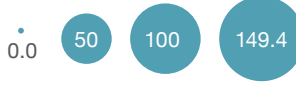
Indianapolis
Southwest Ohio/Cincinnati
Metro Detroit
Western Illinois
Minneapolis-St. Paul

Job locations supported by venture-backed companies

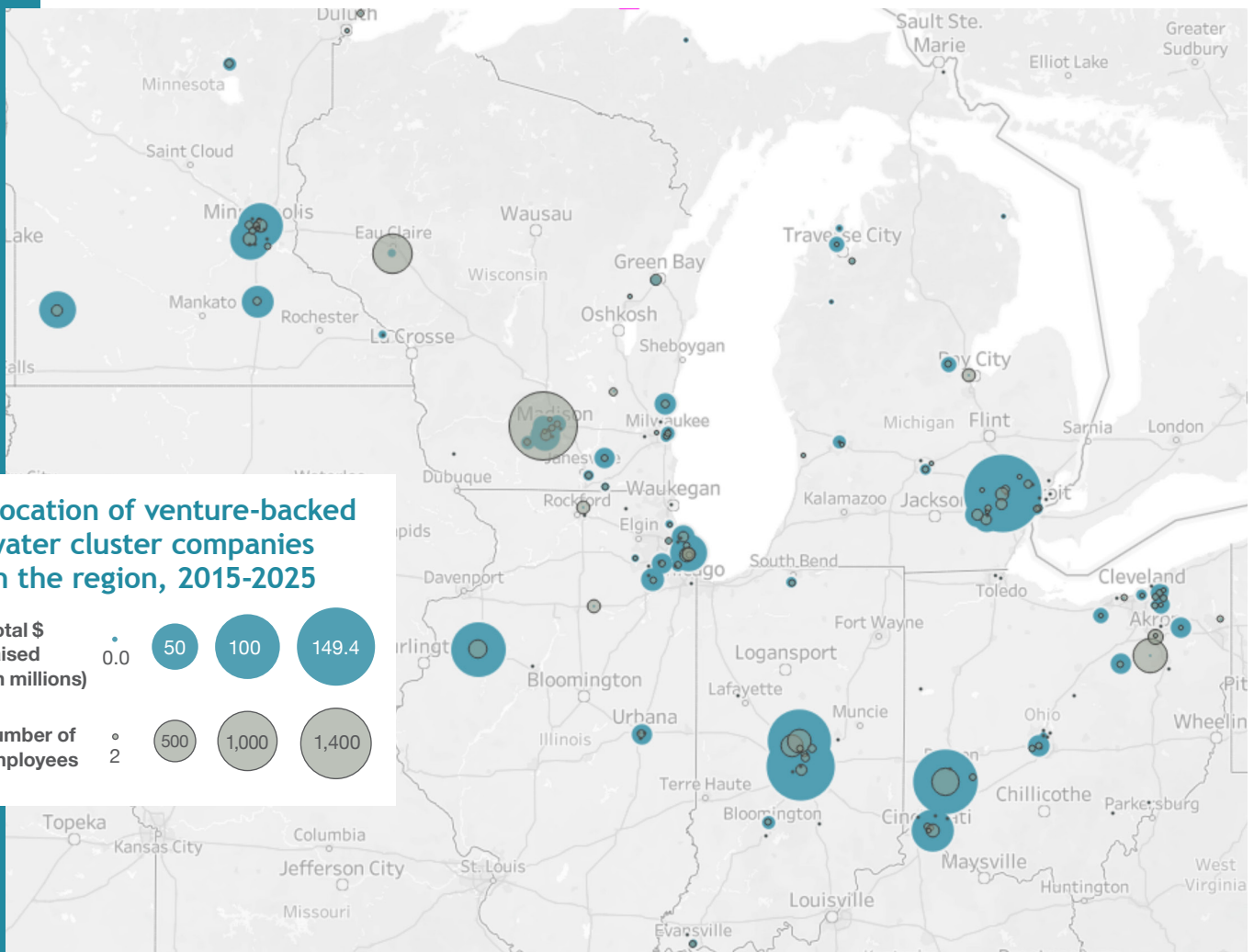
Small to mid-size cities including Madison, WI; Eau Claire, WI; Canton, OH; etc.

Location of venture-backed water cluster companies in the region, 2015-2025

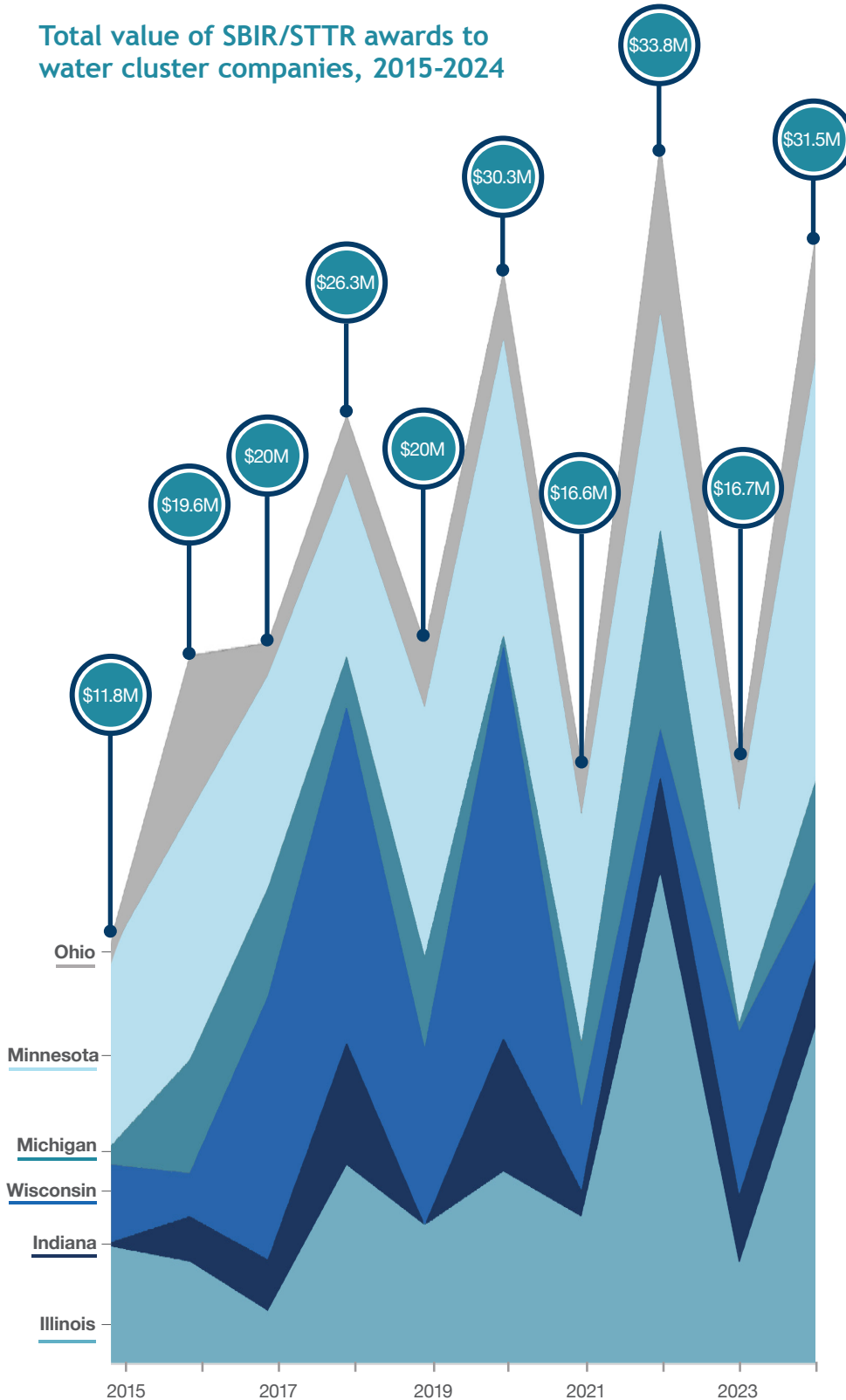
Total \$ raised (in millions)



Number of employees



Total value of SBIR/STTR awards to water cluster companies, 2015-2024



Source: RTI analysis of SBIR/STTR database.

The Great Lakes Region Receives a Strong Share of the Nation's Public Sector Grants for Water Innovation

From 2015 to 2025, the **water cluster** drove innovation by companies and research institutions and drove investments in startups, including the following:

- 494** SBIR/STTR awards for water cluster-related research totaling **\$229 million**.
- 268** companies were supported by these awards and **employ more than 7,800 people**.
- 10%** of national water cluster awards and **10% of national water cluster funding** awarded through these programs are represented in the Great Lakes region.

As shown in the figure at left, since 2015, regional SBIR/STTR awards in water cluster sectors grew from \$12 million to **over \$31 million**, doubling in value and showing growth across all states.



The Circular Blue Economy: Technology Opportunities

A circular blue economy ensures that every drop of water is used to its fullest potential, recovering value that would otherwise be lost and evolving resource management from a linear to a circular model.

Our wastewater contains valuable and recoverable resources, yet most existing infrastructure is not designed to capture and reuse these materials at scale. By recovering critical minerals, nutrients, energy, fit-for-purpose water, and other resources from wastewater while also removing harmful contaminants, the circular blue economy protects water quality and strengthens resource security. The technologies and markets that support resource recovery can enhance national competitiveness, reduce supply chain vulnerabilities, and provide essential inputs for domestic industries.

As water scarcity intensifies around the world, demand for water reuse, reclamation, and resource recovery technologies continues to grow, reshaping how industries manage water. The Great Lakes region is uniquely positioned to lead this transition, with abundant freshwater resources, expertise in water treatment and separation technologies, and a diverse industrial base capable of scaling innovation across sectors.

Read on to learn about four emerging technology areas are showing significant market opportunity for the Great Lakes Region:

1 REDUCTION & REUSE AT THE WATER-ENERGY NEXUS

Definition: the total market value of primary subsegments where water and electricity use intensity are high

Size estimate

**\$250
BILLION+**

Global total addressable market by 2030¹⁵

Drivers

Sustainable expansion of water-intensive industry

Opportunity

Demand for water and energy are inextricably linked; as demand grows, so does vulnerability. Water-energy nexus challenges are particularly acute for data centers and semiconductor fabrication plants. Closed-loop cooling, water reuse improvements via advanced treatment (including PFAS management), and systems to optimize and recover energy across cooling and water management applications offer some of the highest-leverage opportunities for cutting resource demand in these rapidly growing, resource-intensive industries.

End-user needs

“ Reuse is not optional at advanced nodes...there cannot be a waste of water, so our fabs need to be laboratories that show how sustainability becomes part of the manufacturing chain.”

— Joe De Boeck, Chief Strategy Officer and EVP at imec¹⁶

2

METAL & MINING WASTEWATER RECOVERY SYSTEMS

Definition: technology enabling recovery of critical minerals¹⁷ from mining and other industrial wastewaters

Size estimate

\$8 BILLION

Global total addressable market by 2030¹⁸

Drivers

Securing critical minerals supply for high-value manufacturing and security applications; environmental compliance

Opportunity

The U.S. faces a critical minerals crisis, and new mine development is too slow to address it alone. Mine and metal waste streams can help secure critical mineral supplies, but recovery is technically challenging. If innovators can overcome technical challenges (e.g., insight into the composition, distribution, and value of tailings, innovations advancing extraction efficiency and selectivity) and focus on areas with sufficient market and policy support, they can unlock value trapped in tailings and other waste streams while securing critical mineral supplies.

End-user needs

Improvements in extraction efficiency from tailings

“After you make tailings... [the material] surface begins to oxidize [in the dam]. Recovery in flotation... drops [from 90%–92%] to ~20%–30%, even after reactivating the surface.”

Tailings Processing Expert

3

PFAS DETECTION, REMOVAL, AND DESTRUCTION

Definition: testing, removal, and destruction solutions for per- and polyfluoroalkyl substances in water and wastewater

Size estimate

\$4.2 BILLION

Global total addressable market by 2030¹⁹

Drivers

Health and environmental impact, regulations, litigation risk reduction

Opportunity

PFAS forever chemicals are contaminating water and pose serious health risks. Innovative PFAS management solutions can help safeguard water. Regulations and remediation programs drive the market for testing and treatment, and the capability and costs of technologies limit their adoption. Solving for cheaper, faster, and broader PFAS testing will meet market needs and help enable treatment use cases, which must also solve for cost (e.g., offering treatment as a service) and trust (e.g., discharge characterization efforts) challenges.

End-user needs

Cost-effective ways to comply with PFAS testing requirements

“Turnaround time is not a big issue for us. EPA gives enough time... but [at \$400 a test] we may buy LC/MS [equipment] in the future and train staff” to manage the cost of testing.”

Environmental Scientist, Large Water Utility

4

WASTEWATER NUTRIENT RECOVERY SYSTEMS

Definition: technology enabling recovery of nutrients from wastewater

Size estimate

\$6.8 BILLION

Global total addressable market by 2030²⁰

Drivers

Tightening discharge limits to secure water quality, fertilizer cost volatility and supply security

Opportunity

Increasing wastewater nutrient loads are leading to negative economic impacts. Closing the loop on wastewater nutrients can reduce costs for utilities, offset >10% of synthetic fertilizer demand, create a > \$30 billion²¹ economic opportunity, and strengthen U.S. phosphorous²² supply. Recovery is feasible but not often economically viable. Solving for unmet utility needs that support nutrient discharge compliance (e.g., optimizing enhanced biological phosphorous removal, capturing ammonia) and enabling scalable nutrient offtake can drive progress.

End-user needs

Scalable ammonia capture technologies to reduce aeration costs

“Ammonia capture is a big need and challenge for us. We are looking for sustainable tech to recover ammonia from centrate.”

Environmental Scientist, Large Water Utility

¹⁷ Market size estimation methods in Methodology, page 20. ¹⁸ Source: RTI report, page 4. ¹⁹ Source: RTI report, page 5. ²⁰ Source: RTI report, page 4. ²¹ Source: RTI report, page 4.

²² While the USGS 2025 critical minerals definition includes phosphate, the analysis snapshot by this report primarily explored phosphorous recovery in the section focused on nutrient recovery from wastewater.

Catalyzing the Circular Blue Economy, Together

The data is clear: the Great Lakes region is uniquely positioned to become a globally significant blue economy. To capitalize on the regional strengths highlighted in this report, the Great Lakes region needs coordinated action across states and sectors to transform these regional assets into sustained economic opportunity. From data to deployment — here's how you can drive the transition to a more circular blue economy:

INVESTORS: Water technologies are a valuable addition to your portfolio. RENEW can provide insights into stage, size of investment, and journey to market, as well as help you expand your deal flow pipeline.

STARTUPS AND INNOVATORS: If you are searching for support on the journey to market and scale, engage with Current and our Great Lakes RENEW partners who offer tailored commercialization support for water technologies.

ECONOMIC DEVELOPMENT LEADERS: Leverage this report's insights to create strategies to grow your state or city's blue economy and build on existing strengths. Current and Great Lakes RENEW can help you with data, planning, and engagement.

POLICYMAKERS: Drawing on our network and expertise, we can help you shape policies that drive market growth in the blue economy, from incentives and tax credits, to regulations and investment in your region's commercialization infrastructure.

Let's build the future of the blue economy together.

Contact our team to dive deeper into these market trends and learn how you can get involved:



CONTACT US



Blue Economy Snapshots

by State



Illinois

An Innovation Hub for Water Treatment

Economic snapshot

Illinois is a regional powerhouse for water treatment technology and home to the region's top-ranking research institutions driving the next generation of water solutions. Illinois' blue economy supports:

\$249.9 billion

contribution to state GDP²³

1.55 million jobs

across 74,800 establishments²⁴

\$102,746

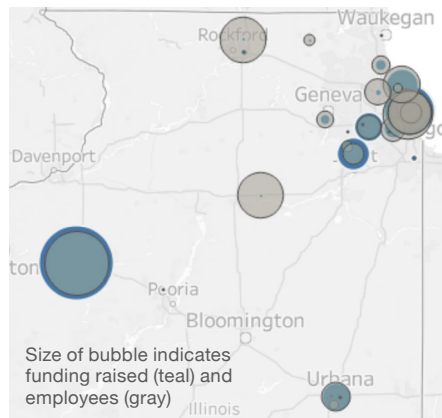
average wage of the 90,800 people employed in the water cluster (131% of state average wage)²⁵

Funding and investment

\$191 million in venture capital²⁶ has been raised by 52 Illinois-based water startups since 2015

\$52.6 million in SBIR/STTR funding has been awarded to blue economy projects in Illinois since 2015²⁷

Illinois venture-backed water cluster companies, 2015-2025



Top Illinois venture-backed water cluster industries and select companies²⁸

Industry Group		Funding Raised	Employees
Commercial Products		\$75 million	165
Consumer Durables		\$31 million	50
Commercial Services		\$25 million	158
Other Materials		\$19 million	20
Other Consumer Products/Services		\$11 million	15
Computer Hardware		\$10 million	56
Software		\$6 million	60
Company	Description	Funding Raised	Employees
Scout Security	Smart home alarm systems	\$10 million	50
Intellihot	Tankless water heating systems	\$74 million	100
LMK Technologies	Trenchless repair, rehab equipment	N/D	51
WaterSurplus	Water treatment systems developer	N/D	50
Cyclopure	Water treatment services	\$9 million	25
Advanced Diamond Technologies	Developer of diamond films for processes	\$13 million	10

Patents and innovation

Illinois ranks #4 in nation

for both separation patents and treatment patents from 2015-2025²⁹

Nonprofit patent leaders

Top nonprofit water tech patents assignees:

Northwestern University	38 patents
UChicago Argonne, LLC	33 patents
University of Illinois	13 patents
University of Chicago	10 patents

Northwestern is also the top nonprofit water tech patent assignee in the region.

HQ patent leaders

Top private sector water tech patent assignees in the region:

Honeywell UOP LLC	ranks 2nd, with 253 patents
Caterpillar Inc.	ranks 4th, with 181 patents

²³ Source: GDP contribution estimation method in methodology. ²⁴ Source: BLS Quarterly Census of Employment and Wages, 2024. Private sector only. ²⁵ Source: BLS Quarterly Census of Employment and Wages, 2024. Private sector only. ²⁶ Source: RTI analysis of data from Pitchbook Data, Inc. ²⁷ Source: RTI analysis of data SBIR/STTR database. ²⁸ Source: RTI analysis of data from Pitchbook Data, Inc. ²⁹ Data for CPC Subclass codes B01D and C02F and select group codes relevant to water technology. By state of lead inventor, patents awarded January 2015 through September 2025. Assignee organization may be outside the Great Lakes region.



Indiana

Leading the Digital Blue Economy

Economic snapshot

Indiana is a national leader in water-related software and smart-tech innovation, bridging the gap between high-tech solutions and the traditional industrial and agricultural strengths. Indiana's blue economy supports:

\$137.4 billion

contribution to state GDP³⁰

947,800 jobs

across 35,700 establishments³¹

\$82,900

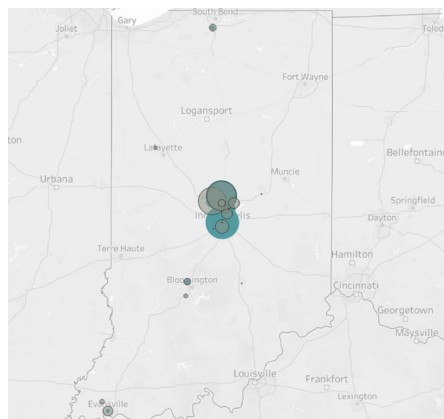
average wage of the 100,300 people employed in the water cluster (131% of state average wage)³²

Funding and investment

\$286 million in venture capital³³ has been raised by 20 Indiana-based water startups since 2015

\$17.1 million in SBIR/STTR funding has been awarded to blue economy projects in Indiana since 2015³⁴

Indiana venture-backed water cluster companies, 2015-2025



Top Indiana venture-backed water cluster industries and select companies³⁵

Industry Group		Funding Raised	Employees
Software		\$163 million	358
Utilities		\$116 million	4
Consumer Durables		\$2 million	15
Healthcare Devices and Supplies		\$2 million	9
Agriculture		\$2 million	19
Company	Description	Funding Raised	Employees
Taranis	Developer of AI-powered crop analytics for agribusiness	\$99 million	168
120 Water	Subscription-based water testing platform	\$17 million	100
Waterly	Wastewater management applications for municipal users	\$4 million	23
Blue Pillar	Energy management technologies for industrial IoT applications	\$38 million	11

Size of bubble indicates funding raised (teal) and employees (gray)

Patents and innovation

Indiana ranks #16 in nation

for separation patents and 21st in treatment patents from 2015-2025³⁶

Nonprofit patent leaders

Top Indiana nonprofit water technology patents assignees:

Purdue University 30 patents
University of Notre Dame 11 patents

HQ patent leaders

Top private sector water tech patent assignees in the region:

Cummins Filtration Inc. ranks 6th, with 151 patents
Cummins Emission Solutions ranks 9th, with 76 patents

³⁰ Source: GDP contribution estimation method in methodology. ³¹ Source: BLS Quarterly Census of Employment and Wages, 2024. Private sector only. ³² Source: BLS Quarterly Census of Employment and Wages, 2024. Private sector only. ³³ Source: RTI analysis of data from Pitchbook Data, Inc. ³⁴ Source: RTI analysis of data from Pitchbook Data, Inc. ³⁵ Source: RTI analysis of data from Pitchbook Data, Inc. ³⁶ Data for CPC Subclass codes B01D and C02F and select group codes relevant to water technology. By state of lead inventor, patents awarded January 2015 through September 2025. Assignee organization may be outside the Great Lakes region.



Michigan

Water Employment and Venture Investment Leader

Economic snapshot

Michigan boasts the region's largest water cluster workforce and leads the Great Lakes states in total venture capital funding for water-related business. Michigan's blue economy supports:

\$201.4 billion

contribution to state GDP³⁷

1.29 million jobs

across 60,100 establishments³⁸

\$102,361

average wage of the 226,800 people employed in the water cluster (150% of state average wage)³⁹

Funding and investment

\$298 million in venture capital⁴⁰ has been raised by 45 Michigan-based water startups since 2015

\$45.8 million in SBIR/STTR funding has been awarded to blue economy projects in Michigan since 2015⁴¹

Michigan venture-backed water cluster companies, 2015-2025



Top Michigan venture-backed water cluster industries and select companies⁴²

Industry Group	Funding Raised	Employees
Healthcare Devices and Supplies	\$154 million	64
Commercial Products	\$67 million	37
Chemicals and Gases	\$28 million	25
Commercial Services	\$15 million	79
Commercial Transportation	\$12 million	61
Energy Equipment	\$6 million	8

Company	Description	Funding Raised	Employees
Gougeon	Manufacturer of marine-grade epoxies	N/D	44
Blue Conduit	Water analytics operations	\$1.3 million	28
Digested Organics	Organic waste management	\$2.6 million	25
ThermoLift	High-efficiency heat pump tech developer	\$61 million	22
Aquasight	Developer of AI platform for municipal waste water	N/D	20

Patents and innovation

Michigan ranks #7 in nation

for separation patents and 12th in treatment patents from 2015-2025⁴³

Nonprofit patent leaders

Top Michigan nonprofit water technology patent assignee:

University of Michigan
16 patents

HQ patent leaders

Top private sector water tech patent assignees in the region:

Ford Global Technologies LLC
ranks 7th, with 147 patents

GM Global Technology Operations LLC
ranks 8th, with 94 patents

Dow Global Technologies LLC
ranks 10th, with 76 patents

³⁷ Source: GDP contribution estimation method in methodology. ³⁸ Source: BLS Quarterly Census of Employment and Wages, 2024. Private sector only. ³⁹ Source: BLS Quarterly Census of Employment and Wages, 2024. Private sector only. ⁴⁰ Source: RTI analysis of data from Pitchbook Data, Inc. ⁴¹ Source: RTI analysis of data from SBIR/STTR database. ⁴² Source: RTI analysis of data from Pitchbook Data, Inc. ⁴³ Data for CPC Subclass codes B01D and C02F and select group codes relevant to water technology. By state of lead inventor, patents awarded January 2015 through September 2025. Assignee organization may be outside the Great Lakes region.



Minnesota

An Innovation Hub for Separation Technology

Economic snapshot

Minnesota is a national leader in filtration and separation technology driven by corporate innovation and leadership. Minnesota's blue economy supports:

\$109.6 billion

contribution to state GDP⁴⁴

715,700 jobs

across 38,200 establishments⁴⁵

\$99,106

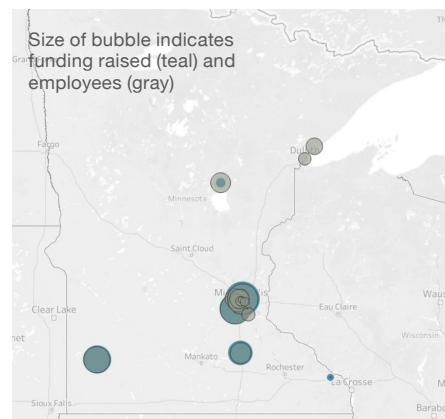
average wage of the 96,900 people employed in the water cluster (132% of state average wage)⁴⁶

Funding and investment

\$187 million in venture capital has been raised by 24 Minnesota-based water startups since 2015⁴⁷

\$21.4 million in SBIR/STTR funding has been awarded to blue economy projects in Minnesota since 2015⁴⁸

Minnesota venture-backed water cluster companies, 2015-2025



Top Minnesota venture-backed water cluster industries and select companies⁴⁹

Industry Group	Funding Raised	Employees
Agriculture	\$59 million	57
Other Materials	\$53 million	40
Consumer Durables	\$50 million	67
Retail	\$10 million	20
Commercial Services	\$8 million	47
Energy Equipment	\$4 million	22

Company	Description	Funding Raised	Employees
IrriGreen	Developer of an IoT digital sprinkler system	\$40 million	46
ClarosTech	Developer of advanced materials technology	\$51 million	40
Iterro Life Sciences	Scalable, shallow-water indoor aquaculture technology platform	\$33 million	35
Living Greens Farm	Aeroponic agriculture company supporting sustainable food production	\$25 million	22
Omnia Fishing	Online fishing gear and tackle platform	\$10 million	20

Patents and innovation

Minnesota ranks #6 in nation

for both separation patents and 8th in treatment patents from 2015-2025⁵⁰

Nonprofit patent leaders

Top Minnesota nonprofit water technology patent assignee:

University of Minnesota
23 patents

HQ patent leaders

Top private sector water tech patent assignees in the region:

Donaldson Company Inc.
ranks 1st, with 397 patents

3M Innovative Properties Company
ranks 3rd, with 184 patents

Ecolab USA Inc.
ranks 5th, with 160 patents

⁴⁴ Source: GDP contribution estimation method in methodology. ⁴⁵ Source: BLS Quarterly Census of Employment and Wages, 2024. Private sector only. ⁴⁶ Source: BLS Quarterly Census of Employment and Wages, 2024. Private sector only. ⁴⁷ Source: RTI analysis of data from Pitchbook Data, Inc. ⁴⁸ Source: RTI analysis of data from SBIR/STTR database. ⁴⁹ Source: RTI analysis of data from Pitchbook Data, Inc. ⁵⁰ Data for CPC Subclass codes B01D and C02F and select group codes relevant to water technology. By state of lead inventor, patents awarded January 2015 through September 2025. Assignee organization may be outside the Great Lakes region.



Ohio

A Water Venture Investment Innovation Hub

Economic snapshot

Ohio is a top-tier destination for water innovation, tying for the highest number of venture-backed companies in the region while maintaining a strong presence in national rankings on treatment patents. Ohio's blue economy supports:

\$210.6 billion

contribution to state GDP⁵¹

1.56 million jobs

across 62,900 establishments⁵²

\$89,466

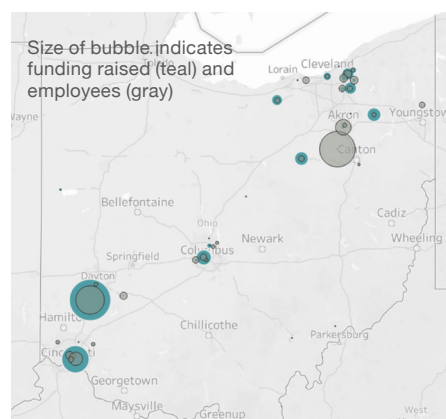
average wage of the 189,300 people employed by the water cluster (137% of state average wage)⁵³

Funding and investment

\$224 million in venture capital has been raised by 52 Ohio-based water startups since 2015⁵⁴

\$68.3 million in SBIR/STTR funding has been awarded to blue economy projects in Ohio since 2015⁵⁵

Ohio venture-backed water cluster companies, 2015-2025



Top Ohio venture-backed water cluster industries and select companies⁵⁶

Industry Group	Funding Raised	Employees
Commercial Services	\$111 million	315
Chemicals and Gases	\$55 million	67
Commercial Products	\$14 million	362
Consumer Durables	\$13 million	34
Other Materials	\$13 million	15
Utilities	\$10 million	12
Computer Hardware	\$3 million	13

Company	Description	Funding Raised	Employees
Lindsay Precast	Engineered precast concrete structures	N/D	350
Aeroseal	Duct-sealing technologies	\$104 million	225
Biowish Technologies	Biotechnologies for food production, etc.	\$44 million	51
Fontus Blue	Digital water quality management systems	\$0.3 million	21
SplashLink	Online intelligence platform for water industry	\$2 million	19
NanoStatics	Producer of nanofibers	\$13 million	11

Patents and innovation

Ohio ranks #12 in nation

for separation patents and 7th in treatment patents from 2015-2025⁵⁷

Nonprofit patent leaders

Top Ohio nonprofit water technology patent assignees:

Ohio State University 27 patents
Battelle Memorial Institute 14 patents

HQ patent leaders

Top private sector water treatment patent assignee in the region:

Chandler Systems, Inc. ranks 4th, with 32 patents

⁵¹ Source: GDP contribution estimation method in methodology. ⁵² Source: BLS Quarterly Census of Employment and Wages, 2024. Private sector only. ⁵³ Source: BLS Quarterly Census of Employment and Wages, 2024. Private sector only. ⁵⁴ Source: RTI analysis of data from Pitchbook Data, Inc. ⁵⁵ Source: RTI analysis of data SBIR/STTR database. ⁵⁶ Source: RTI analysis of data from Pitchbook Data, Inc. ⁵⁷ Data for CPC Subclass codes B01D and C02F and select group codes relevant to water technology. By state of lead inventor, patents awarded January 2015 through September 2025. Assignee organization may be outside the Great Lakes region.



Wisconsin

A Regional Leader in Water-Tech Employment

Economic snapshot

Wisconsin stands out as a top destination for water technology jobs, boasting the highest number of employees per venture-backed company in the Great Lakes region. Wisconsin's blue economy supports:

\$107.1 billion

contribution to state GDP⁵⁸

786,400 jobs

across 32,500 establishments⁵⁹

\$86,258

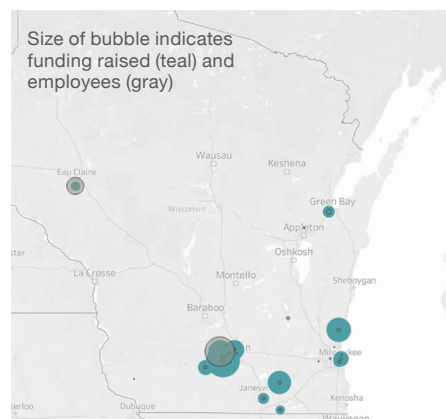
average wage of the 92,700 people employed in the water cluster (135% of state average wage)⁶⁰

Funding and investment

\$90 million in venture capital has been raised by 44 Wisconsin-based water startups since 2015⁶¹

\$21.5 million in SBIR/STTR funding has been awarded to blue economy projects in Wisconsin since 2015⁶²

Wisconsin venture-backed water cluster companies, 2015-2025



Top Wisconsin venture-backed water cluster industries and select companies⁶³

Industry Group		Funding Raised	Employees
Chemicals and Gases		\$15 million	13
Utilities		\$14 million	32
Commercial Services		\$13 million	1890
Commercial Products		\$13 million	50
Transportation		\$12 million	20
Software		\$9 million	23
Computer Hardware		\$5 million	27
Company	Description	Funding Raised	Employees
Pyran	Renewable industrial chemicals for materials production	\$15 million	13
Flamingo Electric	Producer of electric recreational boats	\$12 million	20
Blue Line Battery	Water-resistant lithium-ion batteries	\$8 million	13
AquaMost	Chemical-free water filtration services	\$7 million	12
Biolonix	Wastewater treatment technologies	\$7 million	17
WellIntel	Groundwater sensor/cloud-based platform	\$5 million	11

Patents and innovation

Wisconsin ranks #13 in nation

for separation patents and 10th treatment patents from 2015-2025⁶⁴

Nonprofit patent leaders

Top Wisconsin nonprofit water technology patent assignee:

University of Wisconsin-Madison
14 patents

HQ patent leaders

Wisconsin has a higher than average concentration of patents in water technologies (2.7% and 3.3% of all national separation and treatment patents, respectively).

⁵⁸ Source: GDP contribution estimation method in methodology. ⁵⁹ Source: BLS Quarterly Census of Employment and Wages, 2024. Private sector only. ⁶⁰ Source: BLS Quarterly Census of Employment and Wages, 2024. Private sector only. ⁶¹ Source: RTI analysis of data from Pitchbook Data, Inc. ⁶² Source: RTI analysis of data SBIR/STTR database. ⁶³ Source: RTI analysis of data from Pitchbook Data, Inc. ⁶⁴ Data for CPC Subclass codes B01D and C02F and select group codes relevant to water technology. By state of lead inventor, patents awarded January 2015 through September 2025. Assignee organization may be outside the Great Lakes region.

Economic Impact Analysis

This **Economic Impact Analysis** is an expansion and update of the report **Upstream Illinois: Strategies to Boost Illinois' Blue Economy** (2023). The analysis covers six states—Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin—and updates employment and impact numbers through 2024. **Water Cluster** and **Blue Economy** industries were defined as a set of North American Industry Classification System (NAICS) codes by the Upstream Illinois report. Data comes from the Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages (QCEW) annual averages from 2014 to 2024 to define state totals in employment, wages, and establishments. GDP contributions for each state are estimated based on wages paid, using methodology from the Bureau of Economic Analysis to calculate state GDP contributions by industry (GDP contribution estimated using a ratio of total wages over state GDP: 42.4%).

Patent analysis uses data from the U.S. Patent and Trademark Office (USPTO) and defines water technology through Cooperative Patent Classification (CPC) subclass codes B01D (Separation) and C02F (Treatment Of Water, Waste Water, Sewage, Or Sludge). Patent location is determined using the address of the lead inventor. Data included are from January 2015 through September 2025.

Venture capital (VC) data come from PitchBook Data, Inc. from January 2015 through September 2025. **SBIR/STTR** (Small Business Innovation Research and Small Business Technology Transfer) award data come from SBIR.gov/awards for 2015 through 2024. For each, a set of keywords is used to identify awards and deals related to the water economy.

Technology Market Opportunities Analysis

This **Assessment of Emerging Markets in the Circular Blue Economy** targeted four key technology domains identified by RENEW to have high potential for innovation to enable growth in the overall circular blue economy.

Market assessments were developed based on **mixed-methods research** that drew on a variety of data sources. market size estimates relied primarily on existing, public market estimates with selection of included estimates made by RTI. Other inputs included expert interviews, peer-reviewed literature, grey literature, PitchBook Inc. data, USPTO data, and PatentSnap data.

Market assessments **focused on the U.S. market** but included research to characterized global revenue potentials (total addressable market), actors, and value chain dynamics as a compliment to the U.S.-focused analysis.