



Great Lakes Water Authority Modernizes System with Digital Platform from Aquasight and AWS

Executive Summary

Aquasight leveraged AWS to enable the Great Lakes Water Authority (GLWA) to deploy a regional smart water platform with automated monitoring, real-time data access and analytics, and flexible deployment models to mitigate outdated infrastructure and a shrinking workforce. One of the largest water systems in the United States, GLWA collaborates with 88 member partners across 112 communities to provide nearly 3.8 million people with quality drinking water and wastewater services. The move to AWS services creates an on-demand and highly scalable experience with AWS Lambda and Amazon EC2 and brings together disparate data efficiently with Amazon S3.

A Regional Solution for Water Quality

The [Great Lakes Water Authority](#) (GLWA) is charged with delivering water of unquestionable quality from the source to the treatment plant and then to the municipalities who sell it to customers across a major US region. GLWA must monitor water parameters—such as chlorine levels, bacteria presence, pH levels, water pressure, performance, and more—and report that data to local member partners, which are the local water utilities that ensure the integrity of community-owned systems.

Traditionally, this laborious work has required GLWA's water quality teams to manually test samples, enter data into standalone systems, and report data to member partners. Due to the work required to assess the 1,698-square-mile service area, member partners were receiving reports only once every 6–12 months.

GLWA sought technologies that would enable faster reporting for early warnings and create more efficient workflows for its overextended, rapidly



About the Great Lakes Water Authority

The Great Lakes Water Authority (GLWA) provides nearly 40 percent of Michigan's population with drinking water of unquestionable quality as well as efficient and effective wastewater services to nearly 30 percent of the state. GLWA serves 112 communities through 88 member partners and is focused on the movement of water from the environment to member partner communities and then back to the environment using treatment standards that are stricter than state or federal regulatory requirements.

AWS Services Used

- [AWS Lambda](#)
- [Amazon Elastic Compute Cloud](#)
- [Amazon Simple Storage Service](#)

Benefits

- Creates an on-demand, highly secure, and scalable solution that works for customers of all sizes
- Reduces reporting time from months to the same day
- Makes it simple to store and query large volumes of disparate data from a remote dashboard

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Terry Daniel
Deputy Chief
Operating Officer of
Water and Field
Services, GLWA

retiring workforce. Any solution had to deliver cost efficiencies and work well for the 88 member partners, whose digital capabilities varied widely.

GLWA collaborated with [Aquasight](#), an [AWS Partner](#) and digital solutions provider for intelligent water infrastructure, to deploy the AURA smart water distribution system and APOLLO for efficient wastewater treatment and recovery. These plug-and-play solutions running on Amazon Web Services (AWS) automate water quality monitoring, provide real-time access to data and analytics, and deliver predictive insights in highly secure, scalable technologies.

Real-Time Data and Analytics on AWS for Actionable Intelligence

GLWA's member communities can now see real-time water parameters via easy-to-read dashboards that can be accessed remotely. "Receiving information faster makes it more actionable and means member partners can respond to potential issues before water quality is impacted," says Terry Daniel, deputy chief operating officer of water and field services at GLWA. "For us, this has reduced our reporting time from months to the same day and has enabled us to reallocate team members to new work."

To deliver this service across the region, Aquasight leverages [AWS Lambda](#). "This serverless architecture provides an on-demand experience without the need to provision and manage dedicated servers or virtual machines, reducing infrastructure cost," says David Inman, onboarding manager at Aquasight.

The solution also uses [Amazon Elastic Compute Cloud](#) (Amazon EC2) for scalable cloud computing power. "We can have a very large data lake of points with six-plus years of water quality history and hundreds of individual sampling locations coming in every few days," explains Inman. "The ability to query this information easily from a remote dashboard and spot potential risks for low water quality without slowing down workflow is a big benefit."

Bringing Disparate Datasets Together for a More Complete View

A key benefit of Aquasight's smart water platform is its ability to store large volumes of different types of data and then easily load that data into one view with metadata and attributes retained so the user can accurately assess risks in the water system and even add to the data. "We can plug into datasets that live in different places, whether we're taking in live sensory data from the field, lab data from the utility or a third-party lab, historical data, weather forecasts, and several other sources," says Inman. "We bring them into one platform and apply the analytics engine to advise day-to-day operations and long-term planning."

The system uses [Amazon Simple Storage Service](#) (Amazon S3) to store visual assets such as geographic information system (GIS) maps, HTML/CSS files, JavaScript resources, and raw data including logs, documents, images, or other unstructured data. "With Amazon S3, we can accommodate growing data storage needs without worrying about capacity limitations," adds Inman.

Flexible, Scalable System Enables Further Efficiencies

GLWA offers a set of base features to member partners with the option to extend capabilities by integrating their own GIS-type of information, hydraulic models, smart meter data, or an existing asset management plan to drive further efficiencies. With AWS services, Aquasight has the flexibility to quickly bring additional services online and scale to the needed capacity. “Some of the 88 members only have 10,000–12,000 residents with a few sampling locations. Others have 100,000 residents and 10 times as many sampling sites and data points. We’re able to build applications on this flexible framework and quickly scale to needed capacity,” says Inman.

Empowering the Next-Generation Workforce

The water utility industry is facing a wave of impending retirements, so there’s an urgency to onboard new employees and transfer knowledge. Aquasight’s smart water platform meets that need by capturing historical data, compiling that data in one location, and providing easy access to it through user-friendly dashboards.

GLWA plans to continue adding features to the platform in order to supply high-quality water more efficiently. Daniel says, “The ultimate goal is to be able to see end-to-end traceability of the water at a moment’s notice so we can know the quality of the water from the source to the tap.”

About AWS Partner Aquasight

Founded in 2015, Aquasight is a global leader in intelligent water solutions across the entire water cycle. Its patented, plug-and-play solutions can be layered on top of existing water infrastructure and can scale to any county, city, and township regardless of size or service area. For utilities and engineering consulting firms, Aquasight is providing great economies of scale without requiring any investments in digital infrastructure, resources, or algorithms.

