Irrigation Leader

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SEPTEMBER 2024

NEW ZEALAND EDITION

The Toast of Waitaki: Alisa Nicholls of River-T Wines

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Irrigation Leader

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COVER PHOTO:
The Nicholls Family. Photo courtesy of River-T Wines.

PHOTO COURTESY OF RIVER-T WINES.

Wine and Sport in the Waitaki Valley

By Kris Polly

In this month's cover story, we interview Alisa Nicholls, who with her husband, Paul, owns River-T Wines in Kurow. We learn about River-T's production, its prime location on the Alps 2 Ocean Cycle Trail, and why the Waitaki Valley is an up-and-coming wine region. We also hear about how irrigation ties into River-T's operations.

Then, we speak with John Watts, a senior counselor to Bureau of Reclamation Commissioner Camille Touton. His message: Drought and aridification are going to be huge challenges for all interest groups across the U.S. West, and Reclamation is here to help. We speak about the innovations and investments that Reclamation is helping to facilitate.

We also speak with Michael Hagman, the general manager of the Lindmore Irrigation District and the executive director of the East Kaweah Groundwater Sustainability Agency in California's Central Valley. Both entities have been taking steps to recharge groundwater in the area and make additional water available for local farmers.

Then, we speak with Ron Platt, a board member of Idaho's Boise Project Board of Control, and Bob Carter, its project manager, about proposed legislation that would help fund the rehabilitation of canals of urban concern. This is a pressing concern for the Boise Project, as urban sprawl is increasingly encroaching on one of its major canals.

Sentinel Fertigation's N-Time solution uses satellite imagery to help farmers improve nitrogen use efficiency and save money. We speak with Founder and CEO Jackson Stansell about the results of recent testing and how interested growers can get involved in on-farm trials of their own.

Then, we speak with President Steven Huth of TechnoFlo Systems about the numerous product lines the company manufactures and markets, including meters, monitors, and telemetry solutions.

We also speak with Shane Lewis, the CEO of Australian company Streamwise Digital Intelligence, which has created an AI-powered platform that gathers and digests data on water and wastewater treatment systems in order to provide them to users in an easy-to-use format.

Finally, we speak with Richard Hill, a co-owner of Oamaru Sports and Outdoors. He tells us about the outdoor sports opportunities in the Waitaki Valley, including hunting and fishing.

Investment and innovation are among the most important ways that all stakeholders—including government agencies, irrigation districts, and private-sector businesses—can respond to increasing drought and aridification. I hope you enjoy reading about the steps our water leaders are taking in this month's issue.

Kris Polly is the editor-in-chief of Irrigation Leader *magazine and the president of Water Strategies LLC, a government relations firm he began in February 2009 for the purpose of representing and guiding water, power, and agricultural entities in their dealings with Congress, the Bureau of Reclamation, and other federal government agencies. He may be contacted at kris.polly@waterstrategies.com.*

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"We have been delivering water for over 75 years and managing our assets had never really evolved, we had thrown more paper and more people at it but it hadn't improved. Having Assura as part of our day to day operations has enabled us to be far more effective and efficient with our Asset Management and Safety."

Melanie Brooks, CEO, MHV Water, New Zealand

The Toast of Waitaki: Alisa Nicholls of River-T Wines

The River-T Wines estate.

River-T Wines is a small boutique vineyard in Waitaki Valley, New Zealand's newest wine-growing region. The upstart region is winning awards and attracting well-known winemakers. In this interview, Irrigation Leader *talks with vineyard owner Alisa Nicholls about how she and her husband learned to grow wine grapes, stave off frost, and show visitors a good time—and some good wines.*

Irrigation Leader: Please tell us about your background and how you came to be in your current position.

Alisa Nicholls: I am the owner, alongside my husband, Paul, of River-T Wines. We've been owners for 3 years. Before we took over in 2021, we didn't have any experience in viticulture or hospitality. I'm an occupational therapist, and my husband is an aircraft engineer, so it's a completely new venture for us. We were planning to move to Singapore for my husband's work when COVID-19 hit and we couldn't leave the country. The aircraft industry essentially died overnight. We were living in Central Otago at the time, and Paul was working on tourism airplanes in Wanaka. We still wanted to do something different, so we bought a vineyard. I am from the Kurow area. My parents are local sheep and beef farmers. We always enjoyed coming here and coming to River-T Wines to enjoy the wine and the food. So we thought, "Why not?" I knew the previous owners. They wanted to semiretire, but they were just moving down the road, and they agreed to continue to support us and teach us. We have been fortunate that we've had their guidance along the way.

Irrigation Leader: Would you introduce the vineyard?

Alisa Nicholls: River-T Wines is a small boutique vineyard situated just outside Kurow in the Waitaki Valley of North Otago. We grow roughly 11,000 vines on 3 hectares (7.4 acres). We are fortunate to be in a microclimate in which we can grow many different varieties. We have Chardonnay; Pinot Gris; Pinot Noir, which we also use to make our rosé; and Riesling. We have a little bit of Gewürztraminer as well. The Waitaki Valley is the youngest wine region in New Zealand. Although we are a small wine region, we are now being recognized and winning national and international awards. It's an exciting time to be involved in the industry here.

Vines were first planted in the Waitaki Valley in 2001. Our vineyard was planted in 2007. Initially, grapes from the vineyard were sold to larger brands, but in 2017, the River-T label was established. Because of our cooler climate and longer growing season, we are the last region in New Zealand to harvest. April 29 was our last day of harvest this year. We harvested 24 tons of grapes. A small boutique vineyard is the right size for Paul and me, particularly since we're new to the industry.

Irrigation Leader: Where are the grapes processed and the wine bottled?

Alisa Nicholls: We harvest our grapes by hand. Then, we take the grapes over to our winemakers in Central Otago.

PHOTOS COURTESY OF RIVER-T WINES.

We're fortunate to work with winemakers who are among the best in the industry. Grant Taylor is the founder of the Valli brand, which originated in the Gibbston Valley near Queenstown. He is the only winemaker to have won the international Pinot Noir trophy four times at the International Wine Awards in London. We've also got Jen Parr, who was New Zealand's winemaker of the year in 2020. We also have a French winemaker, Antony Worch. We're thankful to have them on our team. It's quite reassuring for us, being new to the industry, to know that as long as we get everything right in the vineyard, we're in safe hands with the winemakers.

Irrigation Leader: How does the Waitaki Valley compare to the other New Zealand wine regions?

Alisa Nicholls: We're definitely one of the smallest wine regions. The total tonnage in New Zealand in 2023 was around 500,000 tons of grapes. Some 80 percent of that was grown in Marlborough, which is at the top of the South Island. Marlborough is where a large percentage of New Zealand Sauvignon Blanc comes from. The total tonnage of the Waitaki Valley was just 210.

Another thing that distinguishes us is our soil, which is limestone over gravel riverbed. That makes our wine's unique flavors come through.

Irrigation Leader: Are River-T Wines just sold domestically, or do you export them as well?

Alisa Nicholls: Due to the small size of our vineyard, we just sell our wines domestically. We have even had to take ourselves out of the supermarkets because our stock was selling too quickly. Not being able to keep up with supermarket demand is a good problem to have, but at the same time, it would be great to have our branding out there a lot more.

We're fortunate to be on the busy Alps 2 Ocean Cycle Trail, so we get a lot of cyclists from the United States, Australia, and Europe as well as a lot of North Islanders and local people. The trail goes from Mt. Cook, the largest mountain in New Zealand, down past the hydro dams to the coast in Oamaru. People take 7–8 days to cycle it. As part of their trip, they stop at River-T Wines and do a wine tasting, so we have a lot of sales from our restaurant and tasting room, the Cellar Door. We're close to the lakes, so a lot of campers come through in the summer. The Waitaki Valley was recently recognized as a Global Geopark by UNESCO, for its unique landscape and geological features.

Irrigation Leader: Are your vineyards irrigated?

Alisa Nicholls: We don't need to irrigate very often. The vines like the dry climate. Having said that, this year we had a hot,

An aerial view of the River-T Wines estate.

Grapes growing at River-T.

Paul and Alisa Nicholls, the owners of River-T Wines.

dry summer, and this area is officially in drought. We have had to turn the irrigation on a couple of times. We use drip lines for our vines. We have a total of 214 drip lines. We use Netafim's self-compensating drip line at 1.6 liters (0.4 gallons) per hour at a spacing of 0.6 meters (2 feet). Our vines are spaced out 1.2 meters (4 feet), so essentially there are two drippers per vine. According to a bucket test, when the drip lines are on, they provide roughly 3.24 liters (0.9 gallons) per plant per hour.

We're attached to the Kurow-Duntroon Irrigation Company. We use most of that water for frost protection. In spring, when the first buds appear on the vines, the last thing you want is for them to be destroyed by the frost. For that purpose, we use sprinklers, which are attached above the vines. I wouldn't say it's my husband's favorite job. We have alarm systems out in the vineyard that are connected to my husband's phone and alert him when the temperature drops below 2° C (35.6° F). That usually happens at about 3:00 or 4:00 in the morning. As soon as it drops to 0° C (32° F), my husband goes out and turns on the sprinklers. Then, he gets on the quadbike and drives up and down each row to make sure that all the sprinklers are working.

We own four shares with the Kurow-Duntroon scheme and are allocated 6,000 cubic meters (4.86 acre-feet) per share. We used 1,443 cubic meters (1.17 acre-feet) this past season, so we use a small amount of our water allocation and have 94 percent remaining. We don't necessarily need four shares, but obviously, water is a commodity that we will need going into the future. I guess we're future-proofing ourselves by making sure that we've got plenty of water if needed.

Irrigation Leader: What is your vision for the future of River-T and the wine industry in Waitaki?

Alisa Nicholls: We want to continue growing premium wine that's discovered by the world and that people can enjoy. I think we're doing a great job, and it's such an exciting time to be involved. We want to be able to continue showing what the Waitaki Valley has to offer, because it's pretty amazing. IL

Alisa Nicholls is an owner of River-T Wines. She can be contacted at info@rivertwines.co.nz.

PHOTOS COURTESY OF RIVER-T WINES.

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The Bureau of Reclamation's John Watts: How to Take Ownership of Western Water's Future

The B.F. Sisk Dam raise, which will benefit from Bipartisan Infrastructure Law funding, will add 130,000 acre-feet of storage.

Senior Counselor John Watts represents Reclamation during an address to the National Governor's Association, May 2024.

How do western water users prepare for a sharply reduced water supply in the future? They need to work together to develop durable solutions, says Reclamation Senior Counselor John Watts. To help us think clearly about the problem and the solution, he shares some key numbers that every irrigation district needs to know. Here are a few: California's biggest source of water storage, the Sierra Nevada snowpack, is estimated to decline by as much as 45–54 percent by midcentury and by as much as 79 percent by the end of the century. President Biden's Inflation Reduction Act (IRA) and Bipartisan Infrastructure Law (BIL) will distribute $13 billion dollars in western drought resilience funding by 2026. Mr. Watts also offers numbers to back his claim that title transfers of Reclamation facilities offer a win-win solution for local districts and the federal government.

Irrigation Leader: Please tell us about your background and how you came to be in your current position.

John Watts: After attending both graduate school and law school at the University of California, Berkeley, I had the privilege of working on water for Senator Dianne Feinstein for 21 years. The job started at 8:00 a.m. on Saturday, January 2, 2003, when she invited all her legislative staff to her home to get a jumpstart on the new Congress. This relentless quality was typical of her. She was equally relentless in getting important bills enacted, and I got to work on many of these, including bills that established a bipartisan framework for western water infrastructure; enacted tribal water settlements; restored western forests; reduced the risk of catastrophic fire; and restored the salmon run on the San Joaquin, California's second-longest river. I also assisted Senator Feinstein as she helped draft the western water provisions of President Biden's BIL and the drought provisions of the IRA. The respect she garnered opened all kinds of doors with other offices and stakeholders when we worked on those major bills.

Though I held several positions during my tenure with the senator, I worked on water issues for the entire 21 years. I served as her environmental counsel for a while and then as her legislative director for 8½ years. Then, I became a senior counselor working on water and Native American affairs.

Irrigation Leader: Please tell us about your current position and responsibilities.

John Watts: My position is senior counselor to Commissioner Camille Touton of Reclamation, based in Washington, DC. I've known the commissioner for many years, as we worked closely together during our shared time on the Hill. My job gives me the opportunity to assist her on a whole range of issues and continue our successful track record of collaboration. So far, I've been focusing

PHOTOS COURTESY OF THE BUREAU OF RECLAMATION.

especially on California water, appropriations matters, and implementing President Biden's Investing in America Agenda through the BIL and the IRA.

Irrigation Leader: What are Reclamation's near-term objectives?

John Watts: Drought and aridification caused by climate change are going to be huge challenges throughout the West. In many watersheds, year after year, we're seeing runoff levels that are 10–20 percent lower than what we would expect based on the precipitation received. This is only going to get worse over time. I have three messages to irrigation districts about ways to meet this challenge.

First, Reclamation is a partner that is here to help. The Biden-Harris administration's BIL is making historic investments in projects to address drought. In early June, we got out over $1 billion in project funding in a 1-month stretch. By 2026, we will have invested $13 billion in all kinds of western water projects through the BIL and the IRA. It is important to remember that funding doesn't simply arrive where it's needed by edict or accident. It takes all 5,500 Reclamation employees living and working in the communities we serve to make it happen. The same team that ensures our annual appropriations are being executed in a responsible manner is also dedicated to effectively implementing these historic investments. It requires significant commitment and dedication, and Reclamation's employees are up to the task.

Second, aridification is going to adversely affect all interest groups: farmers and environmentalists, cities and rural communities. To mitigate this, we need to build durable programs that can be funded year after year because they benefit all water interests. One example would be pairing investments in broadly supported infrastructure projects—including groundwater storage, aquifer recharge, and regulating and off-stream reservoirs—with investments in water recycling, fish passage and habitat, and the provision of more water for the environment.

Third, we need to think outside the box to develop innovative solutions for a sharply reduced water supply. For example, we should research water-saving crops and new technologies that farmers can voluntarily use to keep land in production despite having less water available. I'm working to see if Reclamation and the U.S. Department of Agriculture can jointly conduct research into water-saving crops. There are many such possibilities, including hydroponic lettuce; kernza, paulownia elongata, triticale, and sainfoin, all of which are forage substitutes; olives; guayule; and pulp substitutes for use in paper products. There are also innovative strategies, such as deficit irrigation. We should test out many of these crops and strategies to assist farmers in their decisions about what to plant with the aim of keeping land in production to the extent possible. Looking past 2026, we can't afford to fall back into the habit of getting politically paralyzed and failing to develop new programs.

Irrigation Leader: What further effects on water availability can we expect from climate change, and what kinds of solutions do you think will be effective?

John Watts: Let me give an example of how climate change is going to require major investments in water conservation; the restoration of conveyance capacity; storage, especially groundwater storage; and equally major environmental restoration funding in California. It is estimated that California's biggest form of water storage, the Sierra Nevada snowpack, will decline by as much as 45–54 percent by midcentury and by as much as 79 percent by the end of the century. These are astonishing numbers with serious implications. The Sierra snowpack is critical because, in a typical year, it stores nearly twice as much water as built reservoirs. The decline in our natural storage capacity is especially challenging because, just when we'll have less water stored in our snowpack, we're going to need more stored water to respond to changing weather. The past few years of weather whiplash have provided a foretaste of what climate change will bring: bigger and bigger atmospheric rivers interspersed with longer and more severe droughts. We will need increased flexibility to carry over the flood flows from these wet years to survive the intervening droughts. The California Department of Water Resources projects a 13 percent reduction in average State Water Project deliveries by 2043 in a median climate scenario and a 22 percent reduction in such deliveries in a worst-case climate scenario.

At the same time, California faces an equally compelling need for more environmental investments. Water will need to be kept in reserve for the environment to provide needed flows during droughts. We'll need cold water for salmon in particular. The Central Valley floor will become increasingly inhospitable for salmon spawning as temperatures rise, so we'll need to provide fish passage above the dams rimming the valley to enable access to higher elevations and colder spawning habitat. To keep salmon runs diverse to minimize population-level threats, we'll need to restore once-flourishing salmon runs on major rivers like the San Joaquin.

The BIL provides an excellent start to tackle these challenges. It will get us a long way toward completing off-stream storage projects, such as the construction of Sites Reservoir, with 1.5 million acre-feet of storage; the B.F. Sisk Dam raise, which will add 130,000 acre-feet of storage; and the expansion of Los Vaqueros Reservoir, which will add 115,000 acre-feet of storage. It will also help us restore the conveyance capacity of critical canals, such as the California Aqueduct, the Delta-Mendota Canal, and the Friant-Kern Canal. Restoring the capacity of these canals is needed to convey floodwaters from atmospheric rivers to areas where they can be stored in the ground and used during subsequent droughts. The BIL has also provided well over $1 billion in environmental funding

The expansion of Los Vaqueros Reservoir, which will benefit from BIL funding, will add 115,000 acre-feet of storage.

for Reclamation, the U.S. Fish and Wildlife Service, and the National Marine Fisheries Service. With the law's expiration in 2026, we will need further bipartisan efforts to expand on these projects. In sum, we can and must build coalitions for stable funding year in and year out by pairing water supply funding with major environmental funding.

Irrigation Leader: Is there anything else that you want the stakeholders to know about the status of Reclamation's drought funding efforts?

John Watts: As I said, between the BIL and the IRA, we have $13 billion that we are getting out the door for western water by 2026. So now is a great time to apply for project funding. If there's something that a district thinks could be of help, it should talk to the local Reclamation area office to see if a Reclamation grant program could be a good fit. We definitely want to help.

Irrigation Leader: You have said that in the future, because of budget concerns, irrigation districts are going to have to stand on their own. Would you expand on that?

John Watts: Reclamation will continue to play a fundamental role in maintaining infrastructure of critical importance for the West—facilities such as Glen Canyon Dam, Hoover Dam, and San Luis Reservoir in California. But Reclamation encourages transferring ownership in many instances from the agency to local districts. Title transfers offer benefits for all parties. As I'm sure readers are aware, the Dingell Act of 2019 gave Reclamation authority to administratively approve many title transfers without needing legislation specific to each transfer. To date, the Biden administration has completed seven title transfers in six states.

That is helpful for two reasons. First, it empowers our partners in local irrigation and municipal districts to gain full authority over facilities they depend on for their water supply. It also gives local districts the power to do their own feasibility studies. They don't have to rely on the federal government to conduct and approve projects such as small storage or water recycling projects. Local ownership gives them more control, and they can approve and complete projects more quickly.

Second, I think that having local ownership of water facilities can provide financial advantages to both local districts and the federal government. It gives a local district that owns its own facilities increased access to federal grant programs like WaterSMART and the Small Storage Program. By contrast, federal funding for water supply at federal facilities is typically structured as a reimbursable loan. To the extent that grants are insufficient to cover a locally owned project's costs, districts can access loan programs such as the one established by the Water Infrastructure Finance and Innovation Act (WIFIA), which offers favorable low-interest, long-term repayment schedules. As a result, a local district that owns its own facilities can often get a 25 percent or sometimes a 50 percent Reclamation grant for project improvements, to which it can add a WIFIA loan, adding up to 80 percent of the project costs in combined federal financing. The WIFIA loan has low interest rates, and repayment is spread out 35 years after the substantial completion of the project.

From the federal perspective, not having to operate the project equates to savings in staff time and other expenses. That allows the federal government to stretch the scarce available federal dollars. The federal government can fund four times as many projects if it's covering 25 percent of the projects' costs through grants to districts that own their own facilities than if it's covering 100 percent of the costs of federally owned projects. If the projects are locally owned, it will enable the federal government to assist water districts with many more projects to combat drought. In summary, I would say that title transfers both empower irrigation districts to fully control their own projects and provide financial advantages for the districts and the federal government.

Irrigation Leader: Is there anything you'd like to add?

John Watts: I am optimistic for the future if we do two things: first, build a bipartisan coalition that supports our water needs, including environmental restoration, and second, think outside the box to devote resources to new ideas, such as researching water-saving crops and innovative technologies. IL

John Watts is a senior counselor at the Bureau of Reclamation. He can be contacted at jwatts@usbr.gov.

Michael Hagman of the Lindmore Irrigation District: Balancing Accounts With Groundwater Recharge

An operating 38-acre recharge pond in LID.

The City of Lindsay's Mariposa storm water basin, operating with surface supply from the Friant-Kern Canal.

Growing downstream demands and shrinking water supply in California's Central Valley are forcing big changes on agricultural operators and the water districts that supply them. In response, annual water allocations for Central Valley farmers are being maintained by new efforts to replenish groundwater, allowing more permitted use of the rivers and canals. Michael Hagman, the general manager of the Lindmore Irrigation District (LID) and the executive director of the East Kaweah Groundwater Sustainability Agency (EKGSA) tells us more about the efforts being made to keep irrigation water flowing under challenging conditions.

Irrigation Leader: Please tell us about your background.

Michael Hagman: I finished college in 1996 with a master's degree in public administration. I began working for Friant Water Authority (FWA) in 2005. LID, a member agency of the FWA, hired me in 2007. In 2016, LID and other Central Valley Project (CVP) agencies started and began managing the EKGSA. Today, I run my farm, LID, and the EKGSA.

Irrigation Leader: Please tell us about LID.

Michael Hagman: LID is located next to the city of Lindsay, up against the Sierra Nevada mountain range halfway between Bakersfield and Fresno. We are also located in the Kaweah subbasin, which is part of the Tulare Lake basin. The district is 27,500 acres in size. We have about 525 customers. About 65 percent of them grow citrus; the rest are mostly split among nuts, olives, and vines. We have some berries, but not a lot. We had quite a bit of alfalfa, cotton, and feed corn, but that is all getting replaced by permanent crops. Some are being fallowed or dryland farmed in oats or wheat.

LID was formed in 1937, when California began the CVP for water supply. At that time, the Lindmore area sat over the Lindsay cone of depression—a severely overdrafted space in the groundwater aquifer. This overdraft resulted from the fact that while this is a perfect place to grow highly valuable and productive crops such as citrus and nuts, it lacked enough water supply. Citrus farming began in the late 1800s in this area.

When the CVP came along, it provided a federal water rights contract to deliver surface water into LID. Ever since we got access to the CVP supply, we've drawn all we can from it for delivery to our farms.

Until 2006, groundwater levels had been rising; the average depth from the surface in LID was 60 feet. After 2006, a drought hit, and the insecurity of our federal water supply hit us too. We also now had more farming to our west. All these pressures increased at the same time. In 2022, our average well depth to groundwater was 176 feet, so we lost about 110 feet of groundwater elevation in about 15 years.

We are now on the mend a little bit because California's Sustainable Groundwater Management Act has directed us not to overdraft. Rules are now in place that ultimately mean landowners must pump less groundwater than before.

PHOTOS COURTESY OF LID.

Irrigation Leader: Do the overdraft and ground subsidence issues go back to the 1930s?

Michael Hagman: The whole basin began overdrafting groundwater as early as 1880, although I think subsidence did not start in the eastern portion of the subbasin until the 1980s. Surface supply back then was a lot more plentiful, but a lot of new farm demand came along, and landowners turned to groundwater to meet their demand.

Irrigation Leader: What are the proportions of the various sources in your water portfolio?

Michael Hagman: LID has a 33,000 acre-foot class 1 water contract for water that can be stored behind Friant Dam in Millerton Lake. LID also has a 22,000 acre-foot class 2 water contract, which is water that is provided only as available, meaning we take it when it comes. Between those two, we could get up to 55,000 acre-feet per year if everything turned out right.

Historically, the district was built on getting just enough water to physically apply to the farmed acreage when it was needed. When I first got to the district, my job was to take the allocation from the Bureau of Reclamation, deliver it to the 25,000 assessed acres, charge them for it, spend money to keep the system going, and report profits and losses.

That routine has changed substantially since then. When it is a wet year, we take all the water we can to store it underground. Our system was only designed to take water on demand, so the district added about 500 acres of groundwater recharge basins. My job now has the added complexity of running a recharge program, getting as much water from the CVP into our system as we can, and maxing out the queue on gravity pipelines that run water to our landowners. Often, our agriculture demand is close to zero, but we are maximizing our gravity lines to the recharge basins.

Irrigation Leader: What is the relationship between LID and the FWA?

Michael Hagman: LID is a member agency of the FWA. The FWA was formed by the federal water contractors that take water from the Friant-Kern Canal, the CVP canal that delivers water from Friant Dam to the Kern River. The FWA operates and maintains the canal. Another agency operates and maintains the Chowchilla-Madera Canal. Each member of the FWA has one vote on the operations, maintenance, and administration of the canal, regardless of its size. LID is a middle-sized agency; other members are twice our size.

Irrigation Leader: Are LID and the EKGSA institutionally connected in any way aside from the fact that you oversee both?

Michael Hagman: The EKGSA was formed by federal water contractors along the east side of the Kaweah subbasin: the City of Lindsay, Exeter Irrigation District, Ivanhoe Irrigation District, LID, Lindsay-Strathmore Irrigation District, Stone Corral Irrigation District, Tulare County, and a couple of water companies. These entities together formed the EKGSA because they wanted to make sure the import of surface supply from Millerton Lake was well represented in the Kaweah subbasin. In wet years, the old method of just taking the water that we needed to irrigate crops has been replaced by the new practice of taking as much flood or surplus water as our class 2 contracts allow and placing it in our respective districts or in the subbasin.

Irrigation Leader: Please tell us about the district's investments into groundwater recharge.

Michael Hagman: My job when I first got here was simply to get water from Reclamation; give it to landowners; charge them; and operate, maintain, and administer LID's delivery system. Around 2010, the federal government settled a lawsuit on the San Joaquin River The settlement created the San Joaquin River Restoration Program. This required more water to be delivered down the San Joaquin River than would have been delivered to the FWA contractors. The LID board members realized they needed to do something different.

In 2016, an opportunity came to buy about 30 acres on one of our main gravity lines. LID bought the land for $300,000. The person selling the land cut us a deal because he was retiring and wanted to help conservation. We quickly put recharge basins on this property. We ran water to it in late 2016 and early 2017, recharging about 3,500 acre-feet in about 10 months. Some of that water evaporates, but 95 percent goes into the aquifer.

LID's board began looking at other groundwater enhancement opportunities. A landowner on our west end sold us 320 acres. We developed a canal and basins on half that land. We are studying the northern 160 acres for other recharge opportunities.

Early on, LID worked with the state and the EKGSA and got a grant to install a turnout from one of our larger laterals into the City of Lindsay's Mariposa storm water basin. We cleaned out 16–18 inches of silt and put about 800–900 acre-feet of clean mountain water into that basin in 1 year. The basin sits on top of a city-owned well that cannot be used anymore due to water quality issues. We hope the addition of this fresh mountain water next to the well will allow the city to operate its $800,000 well with fresh potable water supply.

Lindmore received another state grant for a siphon that goes from the Friant-Kern Canal to Lewis Creek. The project is called the Lewis Creek Siphon. The siphon is 36 inches in diameter with a capacity of about 55 cubic feet per second. We operated in April and May at about 20 cubic feet per second. That water either enters the aquifer or is used by our members.

Irrigation Leader: Do you get some sort of credit for the volume of water you are recharging?

Michael Hagman: The FWA operates the Friant-Kern Canal and reads meters installed and approved by Reclamation. It reports what it reads to the EKGSA. Last year, we moved about 60,000 acre-feet through our system. It was a very wet year. That water is recorded as a delivery of surface supply to LID and is reported to the EKGSA. That is partially offset by added groundwater recharge as measured through the spectral analysis of satellite imagery. The actual evapotranspiration measures how much water is transferred from the earth's surface to the air daily.

Let's say Lindmore receives 60,000 acre-feet for surface supply and deducts 40,000 acre-feet to total evapotranspiration. That means 20,000 acre-feet are not removed from the basin. Those 20,000 acre-feet are then presumed to be entering the groundwater aquifer and are allocated, as directed by the board, to the individual landowners. Extra water becomes available based on the amount of our recharge additions to groundwater supply.

Irrigation Leader: Would you tell us about your other infrastructure projects?

Michael Hagman: We replaced 2½ miles of pipeline last year at a substantial cost. We are also repairing the subsidence of the Friant-Kern Canal in the basin to our south. There was an agreement between the FWA and the next groundwater agency to our south for overextracting groundwater supply and creating subsidence along the canal alignment. Because of this subsidence, the Friant-Kern Canal sank, and continues to sink, so a peripheral canal was built next to the old one. Now, water is run down both canals to meet the design capacity. That was an expensive venture. Reclamation and the state gave the FWA grants to cover about 60 percent of the cost, but the balance must be funded by landowners who use the Friant-Kern Canal.

Irrigation Leader: Has LID also received federal and state grants?

Michael Hagman: The district has received three grants. We received a $200,000 federal grant for a $500,000 project to upgrade our pumping plant electronic controls in 2015. That investment substantially reduced our electrical use because it allowed us to operate to meet demand instead of pumping and storing water to deliver it to a landowner. This was a big help; it saves us about $30,000 annually and helps us deliver water more efficiently to the landowners.

Grants from the State of California partially funded the two projects we talked about previously—the Mariposa storm water basin in Lindsay and the Lewis Creek Siphon project. Revenues collected from landowners funded everything else.

An example of how we generated revenue for our aging infrastructure and projects is that we formed a power agency and developed hydropower projects at Friant Dam. Those power projects generate $1.25 million a year. The district used to use that power revenue to reduce the cost of water delivered to landowners in Lindmore. Now, those revenues are used to maintain our aging structure and to add recharge capacity.

When I first got here in 2007, our water from Reclamation cost $40 an acre-foot, and we charged the landowners $42 an acre-foot. That cost didn't include the cost of moving the water down the Friant-Kern Canal or through LID's pipeline system. We then used assessments, power revenues, and interest earnings on invested reserves to make up the difference between the rate paid and the cost to operate and maintain the system. We would pretty much break even or come out a little bit ahead every year. However, in 2010, the board of directors moved away from this method of managing and financing the system.

This year, the rate is $200 an acre-foot to cover the expenses of operating and maintaining the system; funding these projects; and buying water that isn't going directly to a landowner's meter, such as recharge water. In addition to these projects, the Friant-Kern Canal fix needs to be paid for. Friant contractors also pay for water delivered through the Delta-Mendota Canal system to meet an exchange agreement as well as for other activities. All these inputs cost money. I think $200 per acre-foot is the bottom end of where we will be in the future.

Irrigation Leader: What is your vision for the future of LID?

Michael Hagman: We must continue to reduce groundwater overdraft. We need to continue working to firm up our surface water supply. Every district in the CVP must do that. When I first got here, the average acreage in the district was 20–25 acres per landowner. Now, that number is about 50. The top 50 landowners own about 75 percent of the land. We have moved away from the small farmer. Now, economies of scale favor larger, more efficient farming entities. That is where I think things are headed. That said, there may also be gentleman or gentlewoman farmers who have retired from their day jobs and want 20 acres to live on and farm or pay somebody else to farm. They can enjoy the beauty of fruit, nut, olive, and avocado trees around their homes. That is also part of where I see this area headed in the future. IL

Michael Hagman is the general manager of the Lindmore Irrigation District and the executive director of the East Kaweah Groundwater Sustainability Agency. He can be reached at mhagman@lindmoreid.com or (559) 562-2534.

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How the Proposed Urban Canal Modernization Act Would Help Irrigation Districts Mitigate Risk

Housing in the Boise area has grown up around the New York Canal.

When urban sprawl grows up around irrigation canals, the risk of significant property damage in the event of a failure rises faster than floodwaters in monsoon season. The Urban Canal Modernization Act, introduced in Congress last year, would provide funding for districts to upgrade their at-risk canals. The bill would give districts access to a 35 percent cost share from the Bureau of Reclamation's Aging Infrastructure Account to upgrade the more than 100 canals in the western United States that Reclamation has identified as "canals of urban concern." In this interview, Boise Project Board of Control Board Member Ron Platt and Project Manager Bob Carter talk with Irrigation Leader *about how the legislation would accelerate one such costly project—and about the high cost of proceeding with business as usual.*

Irrigation Leader: Would you each tell us about your background and how you came to be in your current position?

Bob Carter: I am the project manager of the Boise Project Board of Control. I've held that position since 2018 and have been with the Boise Project for 23 years. I started out at our Lake Lowell Division, worked my way up to the main office, and became the assistant manager and then the project manager. My experience basically consists of on-the-ground training. You don't really go to school to learn to be a project manager for irrigation deliveries; you learn how your system works as you go.

Ron Platt: I farmed for over 40 years, providing research propagation for several genetic suppliers. I got into water politics about 40 years ago as well. I've been a member of the board of the Wilder Irrigation District for over 20 years. I also serve as a member of the board of the Boise Project Board of Control and am currently the chair of the Boise Project's long-range planning committee. I also serve on several regional committees that deal with salmon and steelhead in the Northwest.

Irrigation Leader: Please introduce the Boise Project Board of Control.

Bob Carter: The Boise Project was formed in 1926 under contract with the Bureau of Reclamation to operate, maintain, and deliver surface irrigation water to about

PHOTOS COURTESY OF THE BOISE PROJECT BOARD OF CONTROL.

165,000 acres in the Treasure Valley in southwestern Idaho and eastern Oregon. We have Boise River water rights, and when those are depleted and we're out of priority, we have storage water rights out of Arrowrock Reservoir and Anderson Ranch Reservoir. The Boise Project supplies water to five irrigation districts: Big Bend Irrigation District, Boise-Kuna Irrigation District, New York Irrigation District, Wilder Irrigation District, and a portion of Nampa-Meridian Irrigation District. We have about 1,500 miles of canals and laterals.

Irrigation Leader: The main canal of the Boise Project is the New York Canal. How did a canal in the middle of the high desert of southern Idaho come to be called the New York Canal?

Bob Carter: In the late 1800s, a group of investors from New York came out west to try to help finish building the canal. When Reclamation took over the completion of project in the early 1900s, the name *New York* stuck.

Irrigation Leader: What role does the New York Canal play within your system?

Bob Carter: The New York Canal is the first diversion. It comes out of the diversion dam on the Boise River and feeds all 1,500 miles of our other laterals and sublaterals. It runs 42 miles to Lake Lowell, an offsite reservoir that helps us supply water to the bottom of our system. The canal has a capacity of 2,450 cubic feet per second.

Irrigation Leader: Reclamation has designated the New York Canal an urban canal of concern. What does this designation mean?

Ron Platt: Reclamation started to identify canals of urban concern after the 2008 Truckee Canal failure in Fernley, Nevada, which flooded nearly 600 homes. The agency has a list of more than 100 canals in the West that run in highly urbanized areas.

Bob Carter: When the canal was first built in 1909, it was surrounded mostly by farmland. But over the years, urban sprawl has encroached on it, and now the first 6 miles of the New York Canal sit on a natural bench about 40–60 feet above neighborhoods in the city of Boise. The urban sprawl that's grown up around our canal makes our job more inconvenient and costly. We've lost some of our land easements, so it has gotten harder to get our equipment in to maintain the canal. The proximity also comes with greater risk. Over the years, we've taken good care of the canal and relined portions of it, but as with any manmade structure, there's always a chance for something to happen.

Now that it has been designated an urban canal of concern, we're trying to bring it up to today's engineering standards and Reclamation's current safety designations. For example, we're supposed to have 3 feet of freeboard, which is the vertical distance from the water surface to the top of the channel. We have that in many, but not all, areas of the canal. We're also putting in a geocomposite membrane with 6 inches of steel-reinforced concrete, which should last for hundreds of years. We've managed to do small sections. We're trying to get larger sections done so we can finish this work in a timely fashion, but the urban development slows the work, which affects the availability and cost of materials.

Ron Platt: We also have to remove every bit of the existing liner before we reline. If we had been able to maintain the original easement, then we'd have room to do this project at a

The Boise Project Board of Control is renovating the New York Canal using steel-reinforced concrete.

The board of control has to remove every bit of the existing liner before it relines.

more reasonable price. We could leave excavated material on site as part of the bank. But where the easement is now, that material would be in somebody's backyard, so we have the additional cost of removing it and taking it to a different site.

Irrigation Leader: Under the current conditions, how long will this relining effort take?

Bob Carter: Currently, with our crew, the budget, and the weather constraints, we're only able to do 400–800 feet a year. At that pace, we would complete the 6 miles in about 50 years. But if this legislation were to move forward, we would be able to hire contractors and get the project done in 6 years. That's a big improvement.

Ron Platt: We don't think that 50 years is any exaggeration. We've been working on this project since 2011. Based on what we've done in the last 11 years, 50 years is a realistic number.

Irrigation Leader: Please tell us about the legislation recently introduced in Congress by Senator James Risch and Representative Mike Simpson.

Ron Platt: Senate Bill 2160 and the House companion bill would give water districts the ability to upgrade many of the identified canals of urban concern. They would also make available a 35 percent grant match of nonreimbursable funds from Reclamation's Aging Infrastructure Account. Sometimes, that's what it takes to get a district over the peak so that it can get its urban canals brought up to today's engineering standards. If we can push this piece of legislation through, it would provide benefits to all canals of urban concern in the West.

This legislation would provide the funding necessary to get the New York Canal project finished. Since this canal is owned by Reclamation, we think it's appropriate that it shares the cost of the project. According to our analysis, a failure in certain stretches of the New York Canal would cause very little damage—possibly less than $100,000—because the water would flow directly back to the river. However, a failure in or near downtown Boise could cause $2.4 billion of damage. We want to get ahead of that possible damage! If we were able to complete these repairs, the nonreimbursable funding from Reclamation—that is, the cost to taxpayers—would probably be less than $30 million; the districts would be responsible for the balance. This is way less expensive than the cost of a major canal failure.

Irrigation Leader: Why should water managers throughout the West support this legislation?

Ron Platt: It provides an opportunity for water managers who operate canals of urban concern to access the Aging Infrastructure Account. Currently, unless you experience a disaster or something similar, Reclamation can't match anything. This amendment would provide additional flexibility for the bureau to use the Aging Infrastructure Account for some timely, common-sense fixes. It also might create an opportunity to get ahead of potential failures so that people don't end up paying huge sums of money to take care of damage after the fact.

Irrigation Leader: Is there anything you would like to add?

Bob Carter: We're looking forward to getting this project finished in a timely manner, and this legislation would help accomplish that. Like Ron said, we've had 11 years of experience working with this modern lining system. It's a good solution that will help to keep the canal in great working order. We're looking forward to getting that done, and hopefully this legislation will be passed and help us get there. IL

Bob Carter is the project manager of the Boise Project Board of Control. He can be contacted at boiseproject.net.

Ron Platt is a member of the board of the Boise Project Board of Control. He can be contacted at aallseed@aol.com.

PHOTOS COURTESY OF THE BOISE PROJECT BOARD OF CONTROL.

Sentinel Fertigation Delivers Nitrogen Savings and Increased Yields—and Is Looking to Expand On-Farm Trials

Sentinel Founder and CEO Jackson Stansell on site with a grower.

Sentinel Fertigation's N-Time solution is a web-based program that uses satellite imagery to help farmers improve nitrogen use efficiency by more than 25 percent and save more than 40 pounds of nitrogen per acre. In this interview with Founder and CEO Jackson Stansell, we hear more about the results of recent testing and how interested growers can get involved in on-farm trials of their own.

Irrigation Leader: Please introduce yourself and your company.

Jackson Stansell: I am the founder and CEO of Sentinel Fertigation. I founded the company in 2021 to commercialize the technology that a team of researchers and I developed during my master's program in agricultural engineering at the University of Nebraska–Lincoln. Sentinel Fertigation's N-Time software provides recommendations to agronomists and farmers on nitrogen application scheduling and rate, and it is designed especially for fertigation. We developed the technology through on-farm research trials that were conducted in partnership with corn growers across the state of Nebraska. Those trials, conducted in 2021, found that the technology can improve profitability in corn production by $24 an acre and improve nitrogen use efficiency by 30 percent. We now operate in 14 U.S. states, and we have 36 service provider/dealers in 8 states. We are excited about where we are heading, and I think we have a significant opportunity to benefit farmers and agronomists.

Irrigation Leader: Would you talk more about the N-Time Solution and how it works?

Jackson Stansell: To get started using N-Time, all that a user needs to provide is a field boundary. They then let us know which nitrogen application they would like to put their calibration plots into. Our technology currently uses what we call *Sentinel plots*. Those plots are paired high- and low-nitrogen environments in the soil that are created through a base nitrogen fertilizer application.

For example, if a farmer were to go out and put down 100 pounds of nitrogen as their base rate to get the crop started, we would have that farmer drop the rate in certain

PHOTOS COURTESY OF SENTINEL.

areas and increase it in others. Using satellite imagery, we can calibrate the light that is coming off the crop canopy and, based on that light reflectance, see how the crop is responding to nitrogen. That allows us to interpret each of those images and determine whether the crop is going to need nitrogen within the next week. If it is going to experience crop nitrogen demand, the software calculates exactly how much nitrogen is going to be needed to satisfy the crop and maintain it at a level that preserves the yield potential.

Throughout the growing season, N-Time receives satellite images daily. Our system checks those images to see if there are clouds, shadows, or other environmental factors that are causing a defect. As long as no defects are affecting the quality of the images, we pass them through our insights engine. We then determine the 7-day crop nitrogen demand, measure the sufficiency in different locations around the field, and provide a recommendation. That can be as simple as a full-field recommendation for users of our standard tier or as complex as an image-based recommendation that specifies different amounts of nitrogen to be applied in different parts of the field for users of our advanced tier.

It's a versatile platform built on the idea that we should manage nitrogen application like we do water application: based on weather and crop conditions. We would never make decisions about how much to irrigate heading into the growing season before we know those conditions, and we certainly would not decide when to irrigate before the growing season began. Why would we do that with nitrogen? Our philosophy is to manage nitrogen during the season, tailor it to crop nitrogen demand, and in that way produce the most efficient and profitable outcomes for farmers and agronomists.

Irrigation Leader: Does N-Time only work with center-pivot irrigation, or can it be used with other types of irrigation?

Jackson Stansell: Currently, the fertigation injection rate prescriptions that come out of N-Time are specifically for center pivots. We do not support prescriptions for fertigation through linear-move, drip, or furrow irrigation systems. However, the timing and nitrogen rate recommendations that we provide are applicable to drip and linear move systems. We have customers who have used both of those types of systems with N-Time already, even though the prescription support is not entirely there yet.

Irrigation Leader: What are the other benefits of N-Time besides a potential reduction in nitrogen use?

Jackson Stansell: The worst place to store nitrogen is in the soil. Once nitrogen is in the soil, it can be converted into plant-available forms if it is not already in that form. Plant-available forms of nitrogen are prone to leaching during heavy rainfall, overirrigation, or any watering event that pushes the nitrogen through the soil profile. Runoff can also be a concern if fertilizers are applied on the surface or if water exceeds field capacity and carries nitrogen with it. So if you are storing nitrogen in the soil, you are putting it at risk, which is bad for your wallet and the environment.

In Nebraska, nitrogen levels in many wells around the state are well over the U.S. Environmental Protection Agency maximum contaminant load, which is causing significant health concerns for folks in rural municipalities who drink that water. That problem is not confined to Nebraska; many other states also face that challenge. Our technology allows producers to minimize the amount of nitrogen they are storing in the soil. It gives them information that allows them to know when their crop is approaching a period of significant demand. They can apply the correct amount of nitrogen just in advance of that demand so that storage time is minimized. That minimizes the risk of nitrogen leaching into groundwater or running off into surface water. Producers improve profits, and our environmental resources are protected, so everybody wins.

Sentinel's global customer success manager, James Herrick, works with a grower in the field.

Drop sprinklers on a pivot.

Jackson Stansell consults the N-Time platform in the field.

Irrigation Leader: What results have you seen from your product testing to date?

Jackson Stansell: On-farm research is a critical component of validating a product and giving farmers confidence in that product. What we saw in our 2023 on-farm research trials with the University of Nebraska was an improvement in profitability of $24 per acre and an improvement in nitrogen use efficiency of about 28 percent. Those are significant gains. In some cases, we recommended to farmers that they not fertigate for the entire growing season because their base rate was sufficient and organic matter and nitrogen credits from things such as irrigation water and atmospheric fixation were providing enough to the crop to sustain it over the course of the season. In other fields, we recommended targeted fertigation events over the course of the growing season to sustain the crop in specific locations and at specific times.

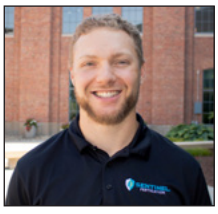
We even had a field last year in which our test sections exceeded the grower's yield. We believe that we achieved that result by recommending an earlier and higher rate of fertigation application than the grower otherwise would have made. The grower ended up fertigating their plots 3 days after we fertigated our plots, and they did so at a rate that was 26 pounds of nitrogen per acre lower than what we used. Their average yield was 2 bushels per acre less than what we got in our sectors. Overall, we still applied 22 pounds less nitrogen over the course of the season than the grower did, so this trial demonstrated the capacity to reduce nitrogen use, but it also showed that applying nitrogen at the right rate and at the right time—even if it is higher at times—can help to achieve positive environmental and productivity outcomes. That paired well with another positive piece of data that came out of our 2023 growing season. Nick Priessler of Giltner, Nebraska, was the 2023 National Corn Growers Association's National Corn Yield Contest Nitrogen Management Class champion. Using our N-Time software, he raised 313 bushels of corn per acre on 180 pounds of nitrogen per acre, which is an impressive outcome.

Irrigation Leader: Where are your customers located?

Jackson Stansell: Most of our customers are in Nebraska, but we also have customers in Georgia, Illinois, Iowa, Kansas, Michigan, Minnesota, Nevada, North Dakota, Tennessee, Texas, Wyoming, and Wisconsin. We are close to having our first field established in Arkansas.

Irrigation Leader: If anyone is interested in taking part in a trial or demo, what should they do to make that happen? Are there any funds available that would help them take part?

Jackson Stansell: We are working hard to get grant funding to expand our on-farm trial program across the country. We are open to expanding the trial of the technology across the United States and into Canada. If readers are interested in trying the technology, regardless of where they are and what grant funding is available, they should reach out to us. For U.S. growers, the Natural Resources Conservation Service (NRCS) technology program 590 is a good option. They can talk to their local NRCS office about EQIP funding and potentially apply to help finance the first few years of using N-Time. Certain conservation districts, especially in Nebraska, also have cost-share programs available. IL



Jackson Stansell is the founder and CEO of Sentinel Fertigation. He can be contacted at info@sentinelfertigation.com or (531) 530-7627.

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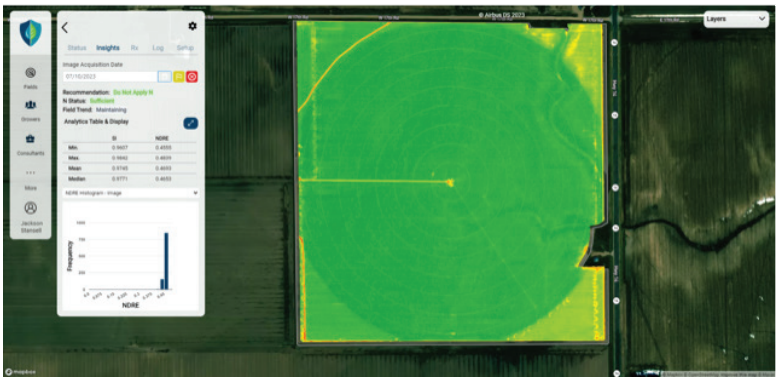

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How TechnoFlo Systems' Metering Solutions Are Helping Fight Groundwater Overdraft

A Ranger device.


A Ranger and an AG3000 spool-type electromagnetic flowmeter at use in a GSA.

TechnoFlo Systems is a flow measurement equipment provider with years of expertise behind its solutions. It provides a range of product lines and boasts specialized labs and testing facilities. In this interview, we speak with Steven Huth, the president of TechnoFlo, about several product lines of interest to irrigators and groundwater sustainability agencies (GSAs).

Irrigation Leader: Please tell us about your background and how you came to be in your current position.

Steven Huth: I grew up in Porterville, California, an agriculturally rich community. My dad founded a flow meter manufacturing company in 1972, and my brother Eric and I grew up involved in the business. Fast forward a number of years, and Eric and I founded our own company, TechnoFlo Systems. I have over 45 years of experience in the engineered flow measurement industry. I was formerly the president and chief operating officer of Water Specialties, a nationally recognized flow meter manufacturer.

My brother Eric has over 40 years of experience in the marketing and application of flow meters. Eric was formerly the vice president, chief financial officer, and international sales manager of Water Specialties. Both Eric and I have been involved extensively in the development of innovative fluid measurement devices and in solving irrigation districts' and growers' meter needs with cost-effective and durable solutions.

Irrigation Leader: Please introduce TechnoFlo.

Steven Huth: TechnoFlo Systems was founded in 2000 after our father sold the Water Specialties company. TechnoFlo is based in Porterville, California. Centrally located in California's fertile San Joaquin Valley, we easily focus on the needs of customers throughout northern and central California, Arizona, and Nevada. With over 80 years of combined experience in the irrigation market, our extensive work with engineered flow products has given TechnoFlo the knowledge and willingness to meet any of our customers' requirements.

We originally began as a manufacturer's representative but have grown into much more. We have 17 employees and an 18,000-square-foot facility. In addition to offering flow measurement solutions, we have a National Institute of Standards and Technology traceable flow test lab and offer accuracy testing for all types and brands of meters. We are able to flow-test to American Water Works Association specifications. We offer meter repair, technical support, and troubleshooting, and the entire TechnoFlo team shares a desire to serve our customers by providing the right products to meet their specific needs along with the best local service and support. We work closely with irrigation dealers, system integrators, and irrigation districts. It's also not unusual to see us in the field, helping a grower with a unique application.

Irrigation Leader: Would you introduce your product lines?

Steven Huth: We offer several different product lines, including Seametrics, Pulsar, SignalFire, and TechnoFlo. Seametrics has been a pioneer in the design and manufacturing of battery-powered electromagnetic flow meters for the irrigation industry. Both the AG3000 and the AG90 flow meters are popular with and accepted by most districts and large-scale farms. These no-moving-part meters are gradually becoming the standard approach. Seametrics

PHOTOS COURTESY OF TECHNOFLO.

also manufactures a line of smart sensors, including level, pressure, and temperature sensors.

We are also excited to now offer the Ranger telemetry transmitter. The Ranger is manufactured by SignalFire, a sister company of Seametrics. Seametrics provides us with flow meters, level and pressure sensors, and the Ranger telemetry transmitter. The Ranger is a robust, cost-effective, reliable, and easy way to remotely deliver data from flow meters or other sensors. The data are securely transmitted over cellular networks for a complete monitoring and alarming service. The Ranger comes complete and mobile device ready and has a cloud interface to send information from meters or other sensors by text or e-mail. The Ranger is compatible with any device that has a compatible output and can be mounted to new or existing flow meters. The Ranger will work with different brands of flow meters, so if an irrigation district has multiple brands of meters, the Ranger can be a good solution. It is easy to install and start up. It's been a great addition to our product offerings.

We also offer Pulsar measurement solutions. Pulsar is a worldwide leader in ultrasonic instrumentation, including level transmitters, flow meters, and open-channel flow meters. Ultrasonic measurement instruments are sometimes the best solution for irrigation district applications. Pulsar solutions are fully compatible with Ranger telemetry,

Additionally, we manufacture our own propeller-style flow meter for certain customers who still prefer this type of technology. The TechnoFlo propeller flow meter sets the standard for performance, ease of use, and value. These meters use long-life, water-lubricated ceramic bearings; a stabilized pickup sensor; and a graphical display based on chip-on-glass and film-compensated super twisted nematic technology that is sharp and readable and won't lose segments throughout its life. The TechnoFlo propeller flow meter is excellent in harsh environments and requires minimal maintenance.

As a manufacturer and reseller, we are uniquely positioned to offer other measurement solutions on an as-needed basis. TechnoFlo makes sure to carry the latest and most advanced flow measurement products available. We specialize in water meters and have a wide variety of magnetic meters, propeller meters, insertion meters, ultrasonic meters, differential-pressure meters, and electronic reading systems.

Irrigation Leader: Please explain your recent telemetry project with a GSA in central California. What was the problem that needed to be solved? How did you solve it?

Steven Huth: In 2014, the Sustainable Groundwater Management Act (SGMA) became California state law and set forth a statewide framework to help protect groundwater resources over the long term. Under SGMA, local agencies are required to form GSAs for high- and medium-priority basins. The GSAs are tasked with developing and implementing groundwater sustainability plans (GSPs) to avoid undesirable results and mitigate overdraft. The time frame to do this is 20 years.

We are working with a GSA that is requiring landowners with wells producing more than 2 acre-feet of water a year to install flow meters and telemetry by January 31, 2025. Some landowners already have flow meters of various brands installed that need to be fitted with telemetry. The GSA also had some weather stations that needed to be fitted with telemetry to allow for remote access to data from a computer or cell phone. Many telemetry solution providers want to sell the hardware and host the data, requiring customers to pay monthly or annual subscription fees, but the GSA wants to host the data itself and does not want the telemetry provider to have access to the data. TechnoFlo Systems was able to work with Seametrics and its sister company, SignalFire, to offer a version of the Ranger telemetry transmitter that will meet this GSA's need. The district can remove the SIM card of the Ranger, replace it with its own SIM card, and import the data into its own system. This protects the data and eliminates recurring subscription fees. Since the Ranger is brand agnostic, it will work with flow meters of other brands, so growers who already have a meter do not need to replace it to comply with the GSA's telemetry requirement. The Ranger also works with the existing weather stations.

TechnoFlo products in the field.

Irrigation Leader: What different flow meters or telemetry systems are being used for this project? What purposes do they each serve?

Steven Huth: This GSA is requiring electromagnetic-style flow meters for this project. These are no-moving-parts meters that can accurately measure flows that range from very low to very high and can typically be installed in tighter spaces than can mechanical-style meters. Both full-bore, flanged-end-style electromagnetic meters and insertion- or saddle-style electromagnetic meters are approved for use.

Irrigation Leader: What is the timeline for the completion of this project? What are the long-term results expected from this project?

Steven Huth: The deadline is January 2025 to meet SGMA and the GSA's GSP plan. The long-range results are to meet the State Water Board's requirements, to avoid undesirable results in the GSA, and to collect data remotely to aid the growers and district in efficiently using the limited water resources it has.

Irrigation Leader: What was the importance of the fact that your telemetry system is brand agnostic? How might this help other customers? Can you tell us about the process of implementing a telemetry system like this into an existing system of meters, monitors, etc.?

Steven Huth: The fact that we can hook up to anyone's flow meter allows growers to use existing meters or the best type of flow measurement device for their applications, such as a flanged mag meter that requires only a short distance of pipe to install; a saddle insertion mag meter that uses more straight pipe but is easier to install; or some sort of simple mechanical flow meter, such as a propeller or paddlewheel. This benefits other customers, since it allows for a standardized telemetry system or one that can interact directly with the district's servers.

The latest flow meters have standard pulse outputs or other outputs that can be easily field programmed to interface with the Ranger telemetry unit via a simple plug-in cable. The level sensors, weather stations, or moisture sensors can be hooked up by landing the sensors' output wires to the telemetry input terminals.

Irrigation Leader: Would you tell us about how your devices can be added piecemeal to existing systems?

Steven Huth: In addition to a variety of flow meters, we offer several versatile pressure, level, and temperature sensors for a wide variety of applications. The Level SCOUT 2X is a great general-use water level sensor that measures level, temperature, and time. It is battery operated and works great for measuring the water level in a well, measuring surface water discharge, or monitoring aquifer levels. We also offer the PS98i pressure sensor, which allows for pump control. These smart sensors can be added to new or existing systems. As an added benefit, these sensors are compatible with the Ranger telemetry transmitter. Users can choose to plug them into the Ranger and collect their pressure, level, and temperature data remotely. The Ranger telemetry transmitter can be used with the PS98i to turn a pump on or off remotely. The sensors we offer are great for applications including well level monitoring, aquifer level monitoring, surface water discharge measurement, pump control, tank monitoring, and more. SGMA is all about groundwater management, so using smart sensors to measure water level and pressure in conjunction with using flow meters to measure the total amount of water used and water flowrate makes good water management sense.

Irrigation Leader: Do you plan to embark on similar SGMA-related projects in the near future?

Steven Huth: Yes. We are currently working with districts in the Greater Kaweah, Kern, Tulare Lake, and Tule subbasin GSAs on flow metering and groundwater-level monitoring projects to comply with SGMA and report usage to the State Water Board. These projects could have telemetry added to them.

Irrigation Leader: What is the best way for potential customers who are dealing with similar flow issues to get in contact with you?

Steven Huth: We are conveniently located in Porterville, California, in the heart of many of the overdrafted GSA basins. We can be reached at (559) 783-1207 or via our website, www.technoflo.com.

Irrigation Leader: Is there anything you would like to add?

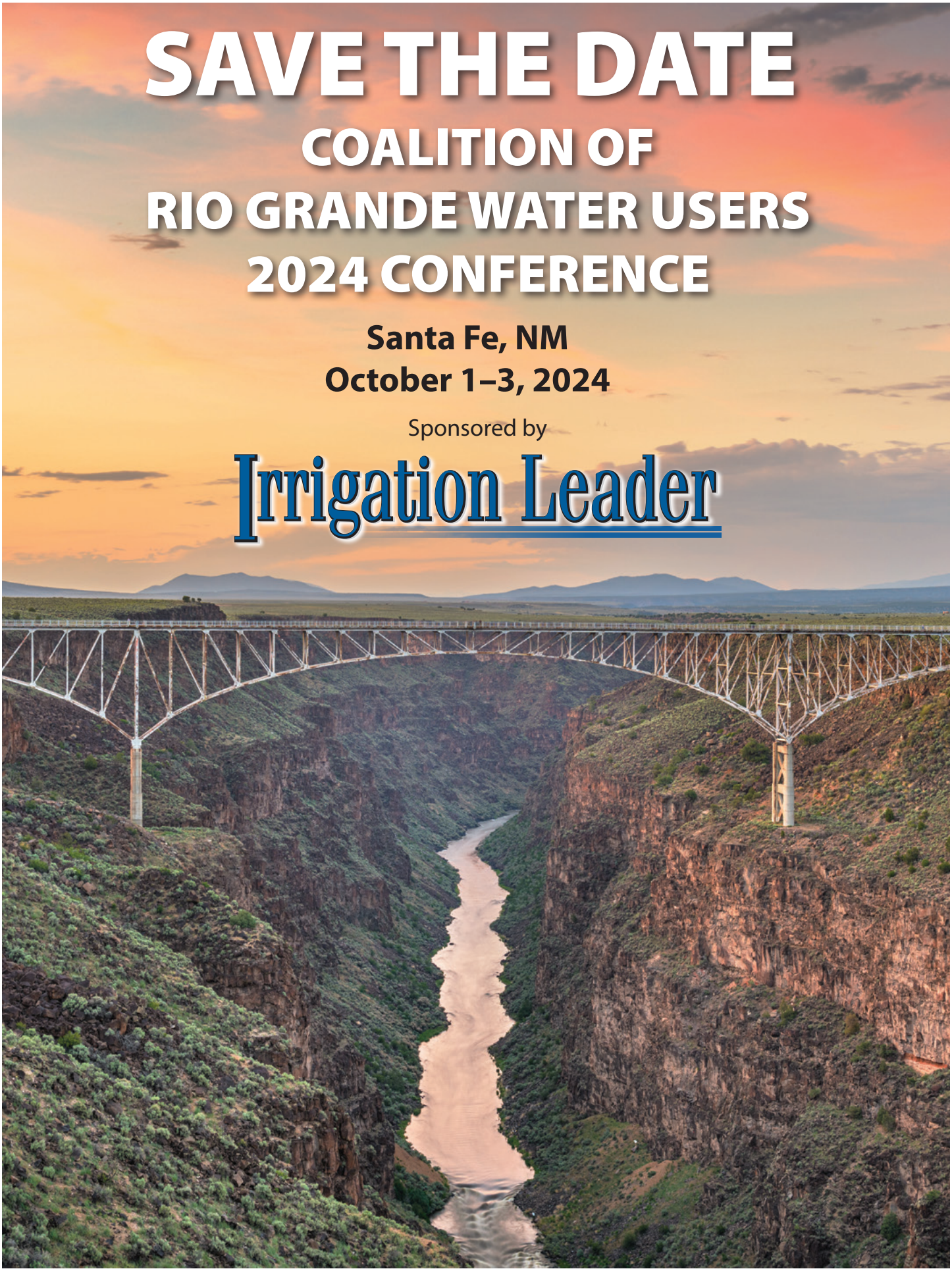
Steven Huth: TechnoFlo is a second-generation family flow measurement company that lives and breathes irrigation meters. We have long-term industry relationships—some more than 40 years old—and we always support the products we sell.

Irrigation Leader: What is your vision for the future?

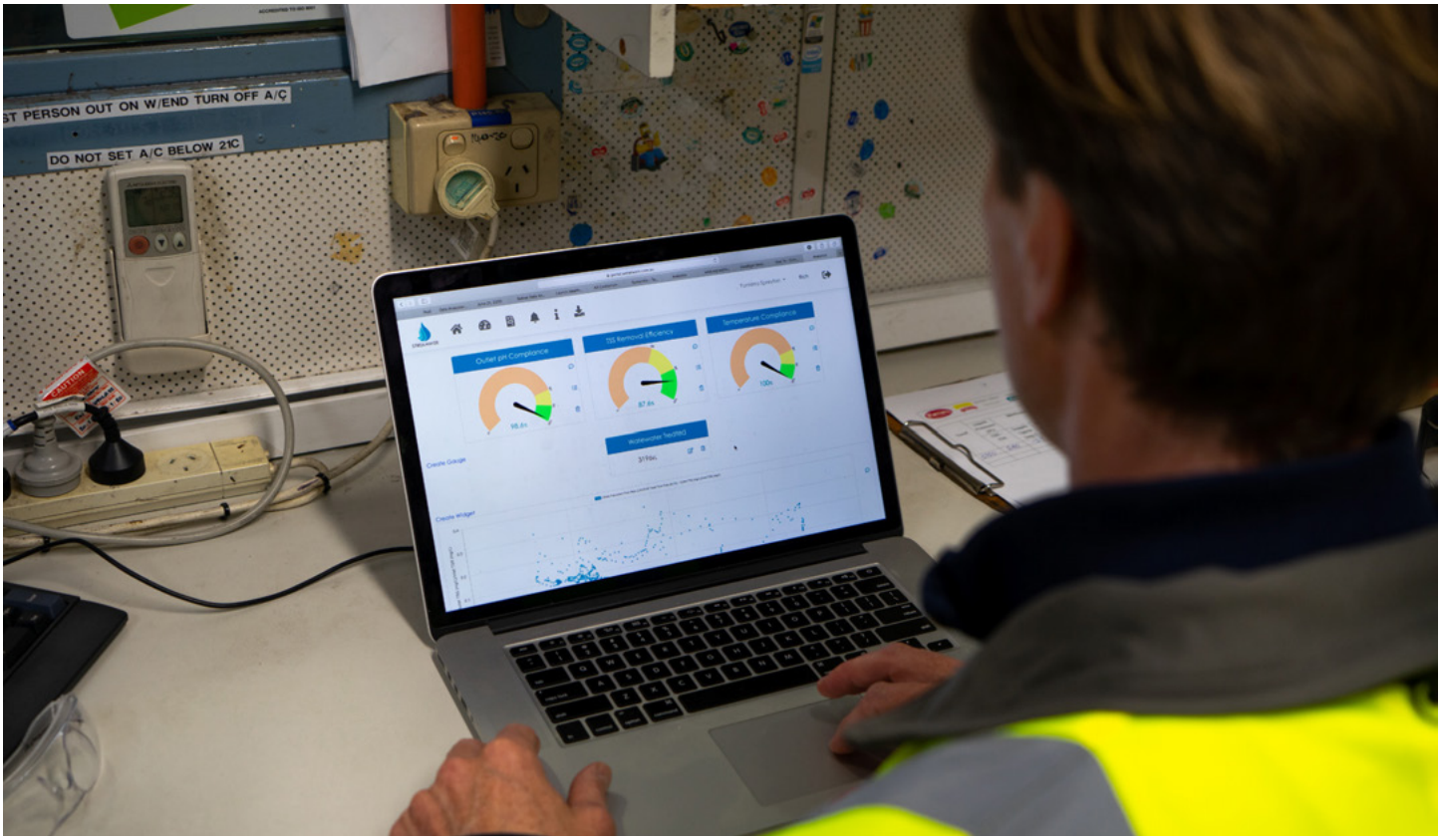
Steven Huth: We want to continue to improve the quality and longevity of the flow meters we manufacture. We want to offer the additional features the industry needs to become fully integrated and to achieve the remote data collection that is needed in our automated world. IL

Steven Huth is the president of TechnoFlo Systems. For more on TechnoFlo, visit www.technoflo.com.

PHOTO COURTESY OF TECHNOFLO.



Streamwise Digital Intelligence: Helping Clients Watch Their Wastelines



The Streamwise platform being accessed on site.

The Streamwise Digital Intelligence (D.I.) platform taps artificial intelligence to give customers a sharper view of their wastewater treatment systems. The result? Better compliance and money savings through reduced chemical application and lower operational costs, says CEO Shane Lewis.

Irrigation Leader: Please tell us about your background and how you came to be in your current position.

Shane Lewis: I've been a senior executive in management positions in the mining and electronics manufacturing industries for well over 20 years. I was based in Australia and then worked in Europe for several years as a managing director. I've also had significant U.S. exposure with some of the companies that I've worked with over the years, both as an independent consultant and as an employee at Honeywell. For the past 10 years, I've focused on cleantech and innovation. I was an early investor in the Streamwise D.I. platform and became the CEO in February 2024.

Irrigation Leader: Please introduce Streamwise D.I.

Shane Lewis: Streamwise D.I. is a subsidiary of Waterwerx Limited, which is now the holding company for Streamwise D.I. The company was historically an equipment-based supplier that serviced wastewater treatment systems, deploying skid-mounted chemical dosing pumps and metering systems with discrete data input to manage the system. In recent years, we found that the data collected from this equipment were actually more valuable than the performance of the equipment itself. We re-engineered the product and developed a platform to gather rich data and provide them in a usable format for our customers. This has also become the key aspect of several patents the company holds in the United States and other markets. More recently, we've introduced generative AI to what was already a sophisticated customer portal. We have a large amount of curated data that we've developed for the wastewater treatment industry. That enables us to give our customers a sharper view of what's happening in their treatment processes and their plants.

Irrigation Leader: Who are your customers, and where are they primarily located?

Shane Lewis: Our customers are primarily large manufacturers and food producers. In Australia, they include large-scale chicken processors, meat products producers, and large dairy producers. We also serve beverage manufacturers, including

PHOTOS COURTESY OF STREAMWISE D.I.

large breweries of well-known global brands. We target the larger production facilities because they have the potential for the best savings gains in areas such as reduction of chemical use.

Irrigation Leader: What is the gap in the market that you strive to fill?

Shane Lewis: Water and wastewater treatment systems often lack real-time, accurate, and timely data. For instance, many food and beverage producers manually test their water treatment systems and send the tests off to be examined. That's a slow, cumbersome process, and the results are only as good as the operator who does the test. Instead, we provide real-time, point-in-place readings on all the parameters that a company usually tests. Not only do we know what's happening with particulate or chemical levels—the obvious ones are total suspended solids (TSS) and pH levels—but we know what's happening in the plant process itself. It is not difficult to overtreat, undertreat, or flatline the dosing of a particular chemical without knowing precise outcomes in real time. That often results in chemical wastage and is suboptimal in terms of energy and labor. Our system allows our customers to constantly monitor and adjust levels in real time. This can also be done via an automated system where we work with our channel partners to augment control and management systems with our data as the primary input.

Irrigation Leader: How is the information provided to the user?

Shane Lewis: At Streamwise D.I., we gather thousands of data points on a daily basis. We supply those data to our customers as a live stream or as a weekly, monthly, or yearly report.

Our dashboard excludes some of the not-so-important information, because too much data and too many alarms can become overwhelming. We use AI to clean out what's not necessary, analyze trends, and then present useful data to customers. We can also compare that information to industry benchmarks and standards.

Most customers want to see the data on dashboards as a percentage of completion or a performance level. For example, indications in an 80–90 percent band may mean that action needs to be taken—a quantity of acid is needed to change your pH levels, for instance.

For security protection, dual-factor authentication is used to log into the portal.

Irrigation Leader: Would you tell us more about how you're using AI in your technology?

Shane Lewis: We are currently using generative AI as a tool to provide curated data to our customers. Our chemical engineers are using AI to data-mine and prepare the reports we send to customers. We also see an expanding use of AI to compare these data to published industry standards to help our customers understand how their processes compare to broader industry benchmarks. This is a straightforward way of using AI as a productivity and accuracy tool, enhancing our already existing AI platform. Of course, AI is moving at a great pace, and our system is adaptable so that we can use the latest AI offerings.

Irrigation Leader: Do you provide training for new users of your platform?

Shane Lewis: Yes. The Streamwise D.I. platform is intuitive and user friendly, but water and wastewater treatment are complex issues, and any treatment system requires sophisticated knowledge and management. We train end users and our channel partners on the more nuanced aspects of platform use.

Irrigation Leader: Who are your channel partners?

Shane Lewis: Our channel partners are independent organizations that promote our Streamwise D.I. platform in the market and install and support equipment. They form part of our go-to-market strategy, and right now, we are seeking channel partners in the United States. They will represent

A Streamwise edge device, which provides the uplink to the cloud.

A Streamwise unit installed on a dissolved air flotation system.

Streamwise D.I. in their local market on all aspects of sales, installation, and ongoing support as part of our subscription-based model. They will be expertly trained on the platform and will be the interface with their own customers, such as large poultry producers. The level of service they offer may vary. It could be that a customer simply has portal access and we do all the analytics and assessment for them. Or, if there is a trained user at a customer's site, we give them the data points and threshold alarms they need to give them insights about what's happening in their plant.

Irrigation Leader: What are some of the ways that your software saves wastewater treatment facilities time and money while benefiting the environment?

Shane Lewis: Many of our users see more than $120,000 in average annual savings. We frequently see reductions in chemical usage of 20 percent. Sludge disposal and removal can be reduced by 30 percent. Effluent fees and compliance fees can be reduced by 20 percent. Because we can reduce overdosing or eliminate flatline dosing, we eliminate the need for manual testing, freeing up employees for more productive activities around the plant. Our solution eliminates the need for manual testing except for emergency or further validation reasons.

Irrigation Leader: How does your platform benefit the dairy and meat industries in particular?

Shane Lewis: One of the key problems with dairies and abattoirs are fats and solids going through to municipal trade waste. In Australia, those facilities have to discharge that effluent to a municipal water authority, which further treats the water. The municipal water authority can increase charges if a facility does not meet the parameters of its trade waste agreement, and that can be very expensive. If a facility exceeds certain limits on carried-over components, the authority can even close off access to its system. We help customers avoid that situation by alerting them to issues before they become a discharge problem for the municipal water authority. For example, a plant may have an abnormally high TSS content that its dissolved air flotation (DAF) system isn't removing efficiently.

Irrigation Leader: Do you plan to expand into any other markets?

Shane Lewis: Yes. On the clean water treatment side, we've received inquiries about managing the delivery of potable water where it is subject to contamination. This is particularly relevant in developing countries and to operators of systems in remote areas, where it is difficult to access the system for monitoring purposes. Streamwise D.I. is a remote monitoring system in its very nature and can be readily deployed to the most remote locations, including by using satellite communications and solar power. We also offer dam and reservoir-level management systems that monitor and report level changes and overfilling scenarios. Additionally, our technology provides a solution for commercial and industrial water cooling towers that monitors and provides data on biological precursors, preventive maintenance regimes, and general asset management.

Irrigation Leader: Do you have a team of specialists who can provide support in person or online?

Shane Lewis: Many of the issues we observe, including equipment recalibration, can be addressed through our 24-hour online support, which is staffed by our engineers. Our local channel partners can also support our customers in a couple of ways. First, there is a physical component to what we do. We have a hardware edge device, which provides the uplink to the cloud. We also install probes on site, as in the case of DAF treatment systems, or in tanks or reservoirs. All these devices can get damaged or reach the end of their useable lives, and you can only recalibrate them so many times. Our channel partners can support customers on site to maintain or recalibrate their equipment through a regular maintenance agreement. They can also perform future installations. Second, much of the system maintenance and portal management occurs through our online support without any interruption to plant operations.

Irrigation Leader: What is the best way for potential customers who may want to request a demo to get in touch with you?

Shane Lewis: They can e-mail me at shane.lewis@streamwisedi.com or call me at my Australian cell number, +61 434 360 264. I would be more than happy to discuss their interest and arrange a demonstration.

Irrigation Leader: What is your vision for the future?

Shane Lewis: We are a cleantech environmental company, founded on a passion to protect our water. As such, Streamwise D.I. delivers cost savings, reduced chemical usage, and verifiable environmental, sustainability, and governance outcomes. Our vision is to provide accurate, timely, and rich data for wastewater and trade wastewater treatment activities to support environmental compliance and to save our customers money. IL

Shane Lewis is the CEO of Streamwise Digital Intelligence. He can be contacted at shane.lewis@streamwisedi.com or +61 434 360 264.

PHOTO COURTESY OF STREAMWISE D.I.

Richard Hill of Oamaru Sports and Outdoors: Hunting and Fishing in North Otago

High-country fishing in the Waitaki Valley.

Richard Hill is a co-owner of Oamaru Sports and Outdoors in Oamaru, New Zealand, population 14,000. In this interview, he offers a primer on outdoor sports opportunities around his small town on the South Island, which is blessed with big opportunities for hunting and fishing—think red deer stags, trout-rich lakes, and rivers filled with 12-pound salmon.

Irrigation Leader: Please tell us about your background and how you came to be in your current position.

Richard Hill: I had a rugby accident back in 1979 in which I broke my neck and was paralyzed. I started in retail at a sport shop in Oamaru called Wilsons Sports, where I worked for Barry and Linda Wilson, the owners, for 25 years. After the shop was sold, I had an opportunity to open my own store with my business partner, Barry McCallum. We started Oamaru Sports and Outdoors 12 years ago. The two of us have a combined retail and sports experience of well over 80 years. We hope that shows to our customers.

Irrigation Leader: Please introduce the business.

Richard Hill: We sell a range of firearms, but we're also a general sports store. We sell camping gear, dive gear, and boating goods, including life jackets and towables. We offer badminton, squash, tennis, and hockey gear. One of our biggest departments is fishing. We also sell Asics brand shoes; shoes is now the number 1 department in the store.

Irrigation Leader: Please tell us about the outdoor recreation activities and opportunities in your area.

Richard Hill: We are based in Oamaru, which is in the North Otago area, just below the middle of the South Island of New Zealand. We have a population of around 14,000. For such a tiny area, we have phenomenal opportunities for fishing and outdoor recreational sports. We have a major river that is 10–15 minutes away from the base of our shop, so we can send our customers to the Waitaki River for fishing. If they want to advance from fishing in the river, they can go further up the road by another 45 minutes to Lake Waitaki. Another 10–15 minutes above that is Lake Aviemore, and another 20 minutes above that is

PHOTOS COURTESY OF OAMARU SPORTS AND OUTDOORS.

Lake Benmore. Above that is Lake Ruataniwha and the nearby 30–35 kilometers (19–22 miles) of canals. That area is full of fish and is huge for winter fishing. The rainbow trout range in size from 2 pounds to the heaviest that has been caught, which was 41 pounds. There are trophy fish to be caught in that area.

We also have recreational hunting. We have red deer, fallow deer, pigs, wallabies, goats, and wild sheep. We sell a range of firearms for outdoor recreational hunters. At the moment, we're in the middle of the season, so hunters are out stag hunting and trying to get the best head. We display them in the store as soon as they're all marked and scored.

Irrigation Leader: Are the lakes you mentioned natural lakes, or are they formed by dams?

Richard Hill: They are manmade. The lakes were formed on the Waitaki River over 100 years ago.

Irrigation Leader: Are the canals you mentioned irrigation canals, or do they have some other practical use?

Richard Hill: The canals send water to hydropower facilities.

Irrigation Leader: You mentioned rainbow trout. What other kinds of fish are people catching?

Richard Hill: In the canals and lakes, it is primarily rainbow trout and brown trout. The Waitaki River has brown trout, rainbow trout, and Quinnat (Chinook) salmon, which come in from the Pacific Ocean. They return to the river every fourth year. We used to run a fishing competition for Quinnat salmon, which used to reach sizes of 18 pounds and up. We have a trophy hanging on the wall that was caught on rod and reel by Mr. Neville Hansen at 46 pounds. Today, with the way that the environment seems to be changing, big salmon are around 12 pounds. It's a real shame.

Irrigation Leader: Are people mostly doing fly fishing?

Richard Hill: Up in what we call the high country, the Ahuriri River runs into Lake Benmore near Omarama. It's renowned for fly fishing throughout the world. I've met many American, English, Irish, and Scottish anglers who have come out here to fish the Ahuriri River for trophy fish. There are big rainbows and big browns. They're wild, unlike the fish in the canals, where there are salmon farms and the big trout sit underneath the salmon farms and feed on the pellets. The Ahuriri River is full of pristine, clear water, and you can get 12- to 14-pound fish.

Irrigation Leader: From the sportsman's point of view, are you concerned about water quality?

Richard Hill: In our area, we have a large amount of dairy farming. The dairy farmers and dryland farmers are working hard to keep the waterways clear and clean. There's a lot of planting going on at the edges of waterways. The irrigation races are now all fenced, which is compulsory here in New Zealand. They need to have them fenced to keep water quality high, not only for fishing but also for pivot irrigation. Many irrigators use K-Line irrigation. The races run right down the side of the Waitaki River. Those systems are extensively used during the summer.

A boy poses with a deer he hunted in the Waitaki Valley with the aid of local deer stalkers.

The high country of Waitaki is renowned around the world for its fly fishing.

Irrigation Leader: Please tell us about your Take a Kid Fishing program.

Richard Hill: Our shop has run Take a Kid Fishing for the last 12 years. We bring 200 children into our shop and take them to a private pond to fish. The pond is fed by irrigation water from the Waitaki Irrigators Collective, a major sponsor of ours. We stock the pond with around 500 of the Quinnat salmon we talked about. The kids can catch a 10- or 12-pound salmon. The smiles on their faces are unbelievable.

Irrigation Leader: What kind of permits would Americans need to fish or hunt in your region?

Richard Hill: Hunters must have a current firearms license from the United States to be able to use firearms in New Zealand. No hunting permit is needed. At places like the Foveran Deer Park, you can hunt trophy red deer, some of which are cross-bred with elk, and most of the time, the firearms are supplied. But you can hunt anywhere, whether you're a tourist or a Kiwi. As long as you get permission from the farming community to enter the land to go hunting, there are golden opportunities to hunt for deer, pigs, and wallabies.

For fishing, you have to go to a local sports store and obtain an overseas fishing license for NZ$264 (US$160). That allows you to fish anywhere in New Zealand except the Taupo Fishing District. You get a regulation book that tells you that on the Waitaki River, you can catch four sports fish a day. When you get to the canals in the high country, it's two sports fish per day.

Irrigation Leader: If Americans bring some of their own equipment, what might they need to declare?

Richard Hill: New Zealand has strict border regulations to prevent the spread of disease. To avoid problems coming in through customs, make sure that your footwear and all your fishing gear are spotlessly clean. Make sure there's no dirt or insects in your boots or gear. Leave your fishing flies and loads at home and purchase new ones in New Zealand from a local sports store. For the hunters, it's basically the same. Make sure your hunting gear is super clean. If you're entering with firearms, you must abide by our laws, and

PHOTOS COURTESY OF OAMARU SPORTS AND OUTDOORS.

Rainbow trout.

you need a license to bring a firearm into New Zealand. Otherwise, you're going to have problems at the border.

Irrigation Leader: What is hunting for red deer like in your area, and what kind of trophies do people get there?

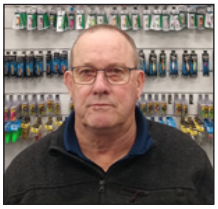
Richard Hill: Red deer are overpopulated. To hunt them, you either get permission from a landowner or go with a hunting guide. Within 20 minutes of our store, you can shoot a red deer. There is rolling country, and there's also steep, hilly country. If you go inland, it's quite mountainous. You need to be reasonably fit. When you're getting up into the heights, you'll see not only red deer but tahr and chamois as well. You could get a 10½- to 12-inch horn, which is classified as a high-quality trophy. There are plenty of stags out there. A lot of the farming community likes us to shoot the female deer to keep breeding down, but stags are our hunters' primary choice.

Irrigation Leader: Which of those species are native to New Zealand?

Richard Hill: They're all introduced. We have no natural predators.

Irrigation Leader: Is there anything else you'd like to add?

Richard Hill: Our attitude toward Americans coming here to hunt or fish is that if they come with an open mind to our welcoming country, we are happy to have them. People are more than willing to help and go out of their way for any tourist. A lot of Americans visit our store. It's helpful for visitors to get a fly-fishing guide, whether it be up country or down country. We can also arrange a jet boat expedition onto the Waitaki River to go fishing or to guide visitors to the hunting area. There is a branch of the New Zealand Deer Stalkers Association in Oamaru that is more than willing to help out. It's only a matter of contacting us and asking us. IL



Richard Hill is the co-owner of Oamaru Sports and Outdoors. For more on Oamaru Sports and Outdoors, visit www.oamarusports.nz.

Irrigation Leader

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MIDDLE RIO GRANDE CONSERVANCY DISTRICT

ENGINEERING MANAGER

Salary: $109,923 – $120,178 annually
Location: Albuquerque, NM
Deadline: Until filled
Summary: Will plan, direct, coordinate, and supervise construction and engineering activities and related functions for the District. Reviews and provides comments and direction on construction plans in accordance with industry and established District standards. Prepares, directs, and reviews engineering/planning reports and other studies. Is the primary point of contact for local, tribal, state and federal governmental agencies and constituents in engineering projects/practices associated with the District's mission of water delivery, drainage, flood protection, quality of life and environmental preservation. The Engineering Manager oversees and approves licenses for typical facilities' crossings and consults with the CEO/Chief Engineer and Board of Directors regarding improvements impacting District facilities and lands. Oversees, directs, and supervises District staff in design and construction activities as well as provides support to divisions regarding optimization of maintenance activities.
Apply: Here

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Apply: https://ecbid.org/open-positions/

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BVID

BAKER VALLEY IRRIGATION DISTRICT ASSISTANT MANAGER

Salary: $50,000 to $70,000 annually
Location: Baker City, OR
Deadline: Until filled
Summary: Performs duties for the District and fulfills functions related to water delivery and day-to-day operations of the irrigation district. This position performs a wide range of duties to support the District Manager and the board of directors to facilitate the efficient operation of the organization. Nestled between the enchanting Wallowa Mountains and the majestic Elkhorn Ridge of the Blue Mountains, our county is a paradise for outdoor enthusiasts. Immerse yourself in the beauty of alpine meadows, serene lakes, and rugged canyons as you embark on unforgettable hiking, camping, fishing, and wildlife-spotting adventures.
Apply: E-mail dschultz31+bvid@gmail.com

NWRA
National Water Resources Association

EXECUTIVE VICE PRESIDENT

Salary: $150,000 plus, annually
Location: Washington, DC or in the Western States
Deadline: Until filled
Summary: NWRA is operated and managed under a professional services agreement with Water Strategies LLC, an independent lobbying and association management firm. We are seeking a distinguished high-profile individual to serve as the next NWRA Executive Vice President (EVP) on a full-time basis. The primary point of contact with NWRA for the EVP is the President of NWRA. The individual must have a working knowledge of western water supply and development issues and an established federal or congressional resume. Serving as part of an existing association management team and at the behest of the NWRA Board of Directors, the EVP's responsibilities are broad and include representing NWRA's interests before Congress and the federal agencies, the media, other organizations and the public.
Apply: For more details or to apply by submitting a cover letter and resume please contact Mr. Kris Polly at kris.polly@waterstrategies.com

Irrigation Leader

Upcoming Events

September 2–4 Irrigation Australia, International Conference and Exhibition, Sydney, Australia

September 9–11 National Rural Water Association, WaterPro Conference, Savannah, GA

September 10–12 Husker Harvest Days, Grand Island, NE

September 11–12 Nevada Water Resources Association, Fall Symposium, Reno, NV

September 17–18 P3 Electrified Summit, San Diego, CA

September 20 Agribusiness and Water Council of Arizona, Annual Meeting and Water Conference, Phoenix, AZ

September 24–26 National Drilling Association, Convention, Cleveland, OH

September 24–26 Southern Nevada Water Authority and American Water Works Association, Watersmart Innovations, Las Vegas, NV

October 1–3 Coalition of Rio Grande Water Users Conference, Santa Fe, NM

October 2–3 Oregon Water Resources Congress, Elmer G. McDaniels Memorial Golf Tournament and Technical Seminar, Sisters, OR

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