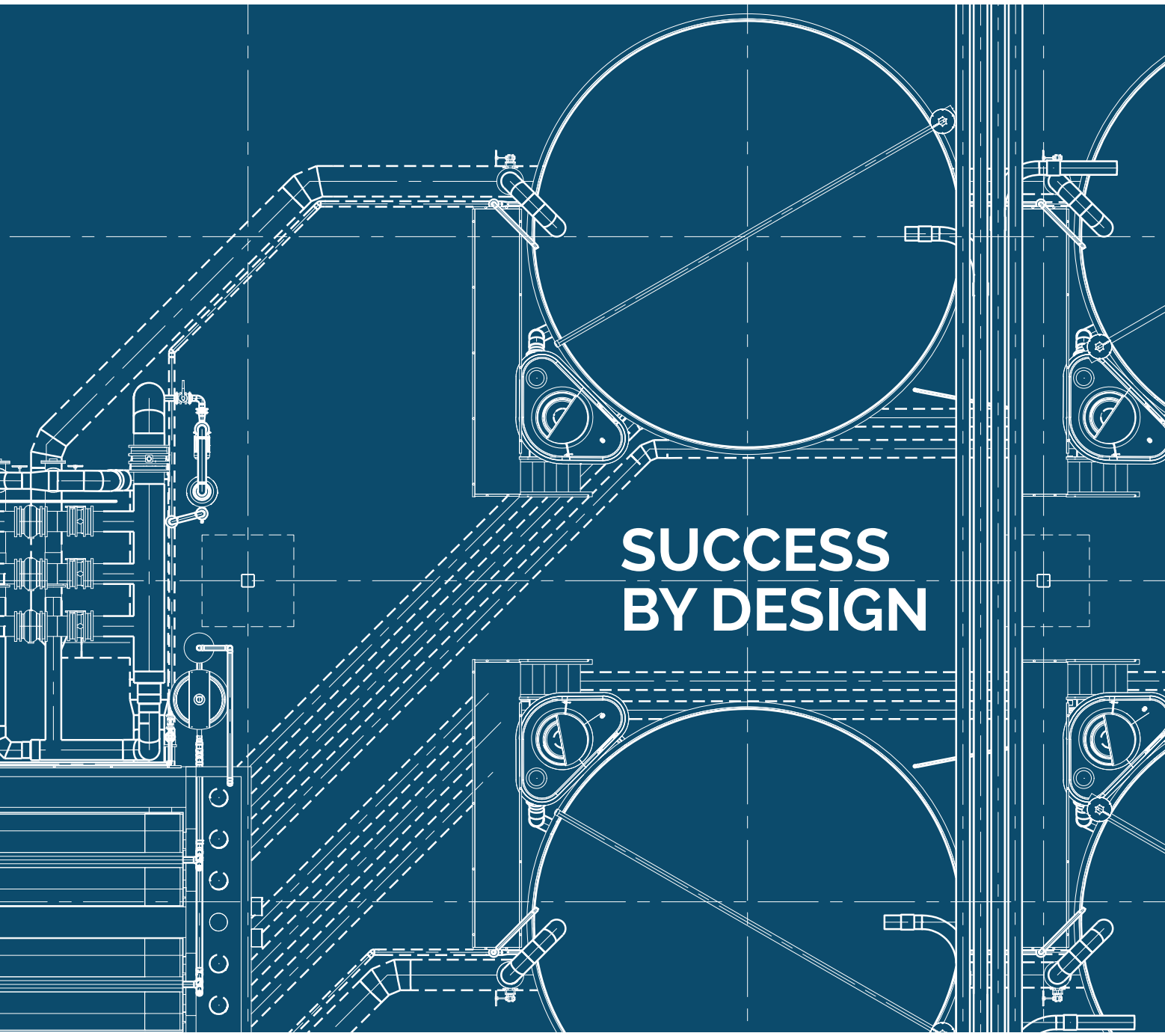
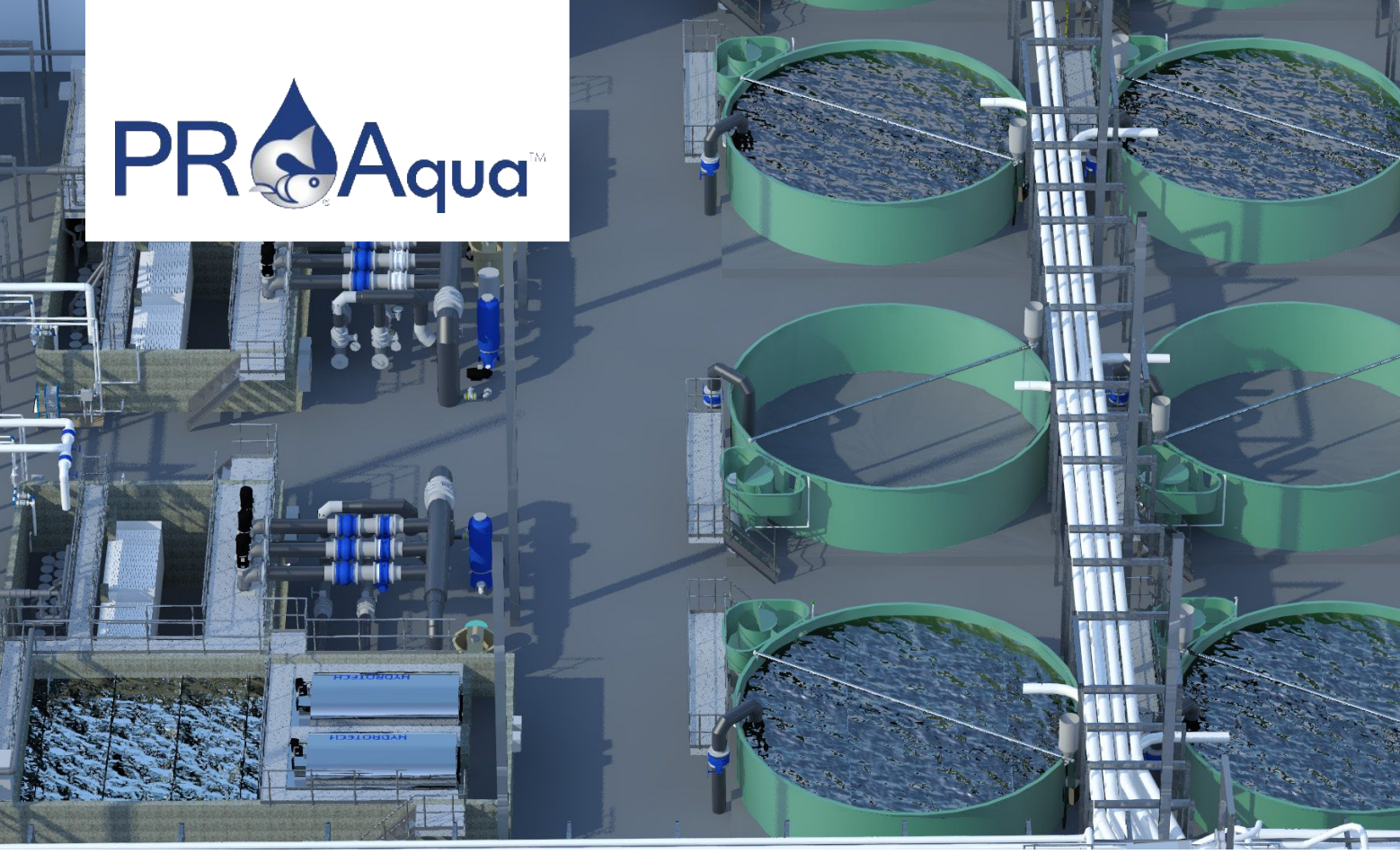
SOLUTIONS IN RAS

·A RASTECH SPONSOR SHOWCASE·



2024 Edition

Presented by: RASTECH



SMART MODULAR SYSTEMS HELP SOLVE RAS 'INVESTABILITY' CHALLENGE

When it comes to commercial RAS farming, hitting the sweet spot where technology meets profitability is the ultimate goal.

RAS technology has evolved significantly from its early application in hatcheries to a well-established, integrated land-based aquaculture system that can grow fish from egg to harvest. With the technical hurdles effectively resolved, the biggest challenge for RAS producers today has shifted from technology to economics – and it's an area that RAS engineering and technology firm PR Aqua is focusing on.

"We work with many customers on designs, and often they get stalled in the planning stage because they run up against the challenges of raising the funds to construct the facility and to operate it to a point where they're flowing cash," explained KC Hosler, general manager and chief technology officer of Nanaimo, B.C.-based PR Aqua. "It's largely a capex issue more so than an opex issue."

Historically, RAS farms have been designed and engineered from the ground up as a customized solution based on a client's specific requirements and production targets. It's a strategy that Hosler says needs to change if we are to make RAS more investable.

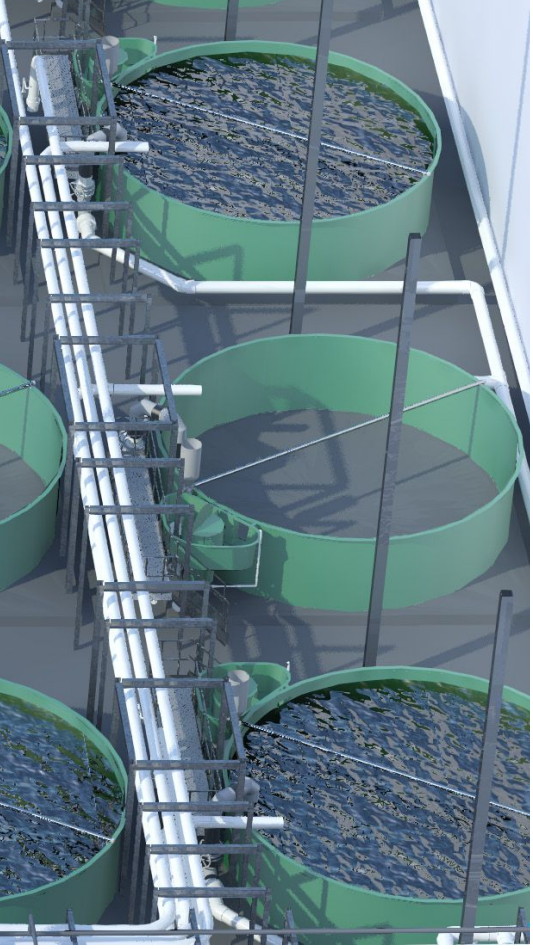
"While they might leverage the same concepts, the same processes, or the same pieces of equipment, the challenge with customized designs is that they're very much like prototyping. And prototypes have risks where you can't leverage repeatability of design to help mitigate those risks and drive improvements in cost."

SHIFTING PHILOSOPHY

Redefining the approach to the design and engineering of RAS requires looking at the process through an economic lens – from tank capacity to system scalability. Technology partners can play a significant role in this re-imagined paradigm, working in conjunction with producers.

This addresses not just the profitability, but investability of a RAS project. Mainstream investors have viewed RAS projects as carrying a high level of risk and businesses have the burden of proving out the feasibility of their project.

"It's a complex thing to be rearing fish and creating a whole life-support system for them on land and there are many risks involved. These include biological risks such poor genetics or poor fish performance, process risks such as mechanical or electrical failure, or operational risks which may include operator error or mismanagement of the facility due to high complexity. When these are added together, RAS could be perceived as a high risk invest-



ment for people with capital," Hosler said.

And in the current economic climate of high interest rates and elevated inflation levels, investors are even more wary and may favour RAS projects that can show higher predictability and lower risk level, and effectively demonstrate a clear path to profitability.

PR Aqua's strategy leverages smart modular RAS designs that veer away from tailored solutions and move toward a more strategic approach that mitigates risks and drives operational efficiency for optimal output.

Hosler believes PR Aqua's years of experience, as a technology partner and RAS knowledge leader, have put them in a strategic position to offer this value proposition.

STRATEGIC SOLUTION

PR Aqua has been in business since 1985, initially as an equipment provider for the local aquaculture sector in British Columbia. Its transition into an integrated RAS solution provider began in the mid-90s, and the company has since expanded, providing commercial RAS solutions across North and South America.

With nearly 40 years of experience under its belt, PR Aqua has seen the evolution of land-based aquaculture, both in its failures and successes. These decades of insight, innovation and building client relations are driving the company's resolve to go beyond technology and into a business mindset to help clients solve some of their biggest challenges.

"If we are able to bring more certainty to the capex and opex of these facilities while minimizing the risk, it can help," Hosler said. "We're trying to make RAS more investable."

This shift is less about the technology and more about philosophy and mindset, Hosler added. "We've always designed in a modular fashion and we've always built larger-scale facilities with multiple RAS to limit risks. Some of what has changed is in our focus on bio-planning and how we can optimize culture tank volumes and treatment equipment to maximize production goals, rather than trying to custom design culture and treatment systems around a set production tonnage target."

As an example, the production target might be 1,000 mt HOG, but by optimizing the bio-plan to maximize the operational capacity of the defined treatment systems, a farm may instead produce 1,200 mt HOG within the same capital investment.

PR Aqua's smart, modular designs minimize the risks associated with highly customized RAS solutions. This strategy optimizes capex-to-production ratio, leveraging standard building blocks to create bio plans that maximize efficiency, reduce capex/opex and produce optimal output.

"By working hard to develop smart RAS systems that are optimized from a constructability perspective, and then leveraging that solution again and again, you reduce the risk and uncertainty by using a design that has been validated," Hosler explained.

The team at PR Aqua works with the client to create a farm design and production plan that leverages their smart modular RAS designs, ultimately driving a business plan that will satisfy investors – creating an investable RAS project.

THE SOLUTION

- Smart modular RAS designed to optimize efficiency, constructability, and capex/opex.
- Bio plans built to maximize farm output and productivity using standard designs rather than to deliver a predetermined production goal using custom designs.
- Continuous refinement and validation of standard designs to achieve the lowest risk and highest certainty of performance.

CONTACT:
KC Hosler / Ian Race
PR Aqua
#4 - 5148 Metral Dr,
Nanaimo, BC V9T 2K8
Phone: (250) 714-0141
www.praqua.com