AES NEWS
www.aesweb.org
March 2025

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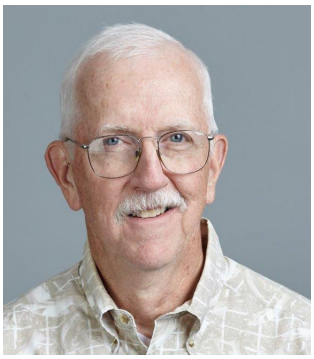
PRESIDENT'S LETTER



Dear Members,

President Michael Timmons here and looking forward to seeing you either in real time or virtual space at the upcoming WAS meeting in New Orleans (March 6-10). The AES is sponsoring two days of sessions.

I'm happy to report that our membership is now exceeding 350 members (in September 2024 we were at an all-time low of ~40 members). Our board has been reenergized and lots of good ideas are being implemented. Please review our improved website (www.AESweb.org). This year's membership dues were reduced from $50 to $0 to recruit new members and to regain your confidence that the AES is providing value to our members and sponsors.

The AES website should be the first place you think to go if you have any questions about aquaculture or a personal need, e.g., looking for a job, selling equipment, finding a member's phone number or email address. If you can think of something that would be useful to you, then it's probably useful to many other folks in our aquaculture community. So please ask.

An important expansion of the AES is that it now allows chapters to be established in countries or regions. Already, India and Saudi Arabia have established chapters, and the Phillipines is not far behind. Creating a chapter allows its members to focus on their own country's needs and thus the value of the chapter approach. To establish a chapter, please contact me directly. Requirements are a minimum of 20 members and to recruit a sponsor that contributes $1,000 to the AES. The chapter sponsor has the benefit of direct marketing to the country and its potential customers for the sponsor's products.

I'm asking all current members to use their own personal networks to recruit members. And as a reminder, members benefits include the following:

- Free society membership
- Access to all society webinars at no cost
- Online subscription to Elsevier's Aquacultural Engineering journal for only $75 (* previously $170 *)

(continued on page 2)

BOARD OF DIRECTORS

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Brian Vinci
Director (US-based)

STAFF
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Administrative Assistant

(President's Letter continued from page 1)

- Hardcopy subscription to Elsevier's Aquacultural Engineering journal for only $100 (* previously $195 *)

And a recent benefit is that the Ithaca Publishing Company is offering all members of the AES a 10% discount when purchasing the popular text "Recirculating Aquaculture, 5th ed" (https://ithacapublishingcompany.com).

Please use the following links to join or renew your AES membership and take advantage of the discounted subscriptions:

Join/Renew—https://www.aesweb.org/members/join

I look forward to serving the aquacultural engineering community to the best of my ability.

Happy fishing!!
Michael "Yellow Book" Timmons
Email: mbt3@cornell.edu

COME SEE US AT BOOTH 239 IN THE AQUACULTURE 2025 TRADE SHOW!

ARTICLE:

OPTIMIZING SUPER-INTENSIVE SHRIMP TANKS

Brian Vinci*, George Chamberlain, Robert Jones, and Antonio Santa Marta

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Bacterial, viral, and parasitic disease outbreaks have severely impacted shrimp production over the last thirty years, leading to ongoing modifications to farming practices. While most shrimp are still produced in extensive or semi-intensive (high volume, low density) ponds, there is recognition of and movement toward intensive (low volume, high density) techniques to achieve production goals (Villarreal & Juarez, 2022) and reduce per unit carbon emissions. However, with intensification comes increased waste production, which, if not appropriately managed, can contribute to significant problems in the production system and the surrounding environment, ultimately leading to a recurring disease cycle. Control and management of waste solids in ponds and tanks are essential for improving production outcomes and reducing the environmental impact of this farming practice. Engineered solutions to control waste solids, like self-cleaning tanks, are used in intensive land-based finfish aquaculture operations to enhance rearing conditions.

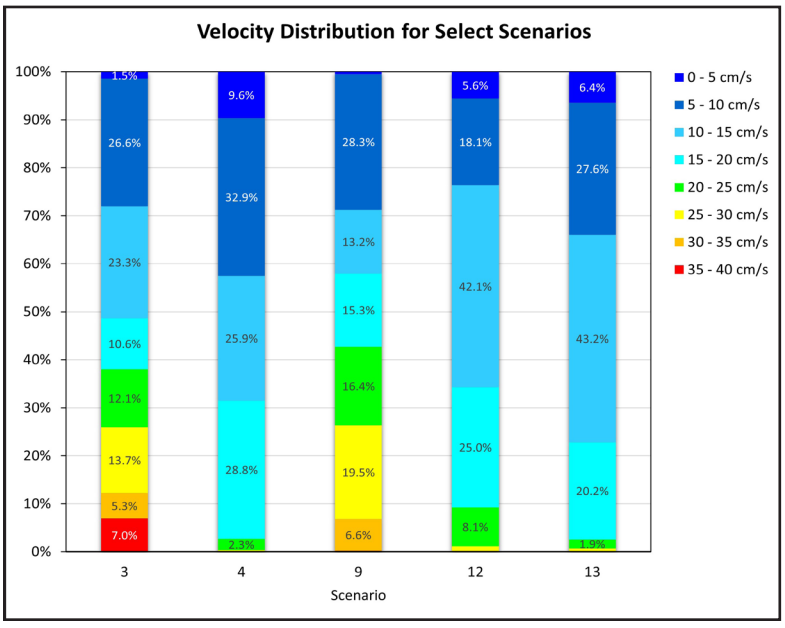
Applying this technology to intensive shrimp production is promising; however, there is a need to establish and understand key technical and

biological parameters that impact the feasibility, operation, and, ultimately, the performance of self-cleaning tanks and small-scale ponds for shrimp.

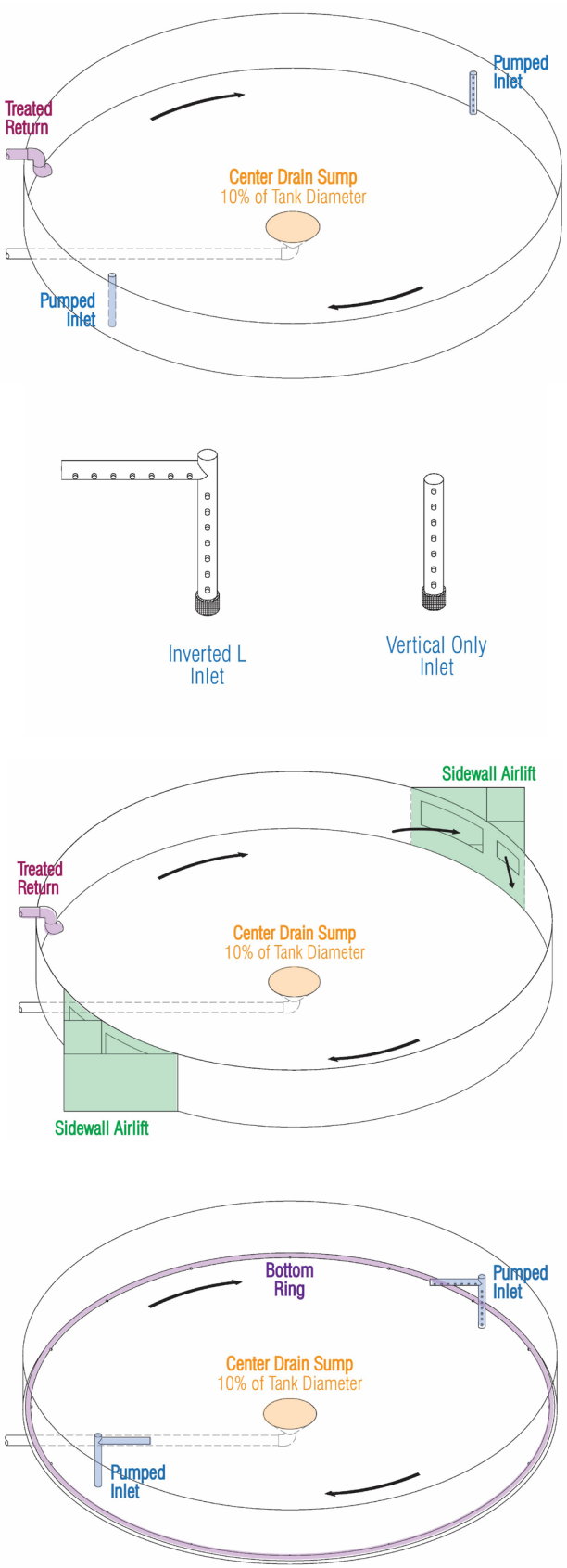
The impact of key design parameters on intensive shrimp tank self-cleaning and mixing was evaluated using computational fluid dynamic modeling (CFD). Model results for water velocity magnitude and direction were the major factors evaluated for performance. Water velocity magnitude data was assessed relative to literature values for shrimp swimming capacity. Velocities greater than 25–30 cm/s were considered excessive for shrimp; velocities less than 10–15 cm/s were considered too low to adequately move waste solids toward a central drain (see chart).

Major findings point to the potential of using an independent method to create the radial current that carries waste solids to the center drain, separate from the primary rotating flow. In finfish aquaculture applications, a tank's primary rotating flow creates the secondary radial current for self-cleaning with an appropriate center drain hydraulic loading rate. However, tanks used in shrimp aquaculture have significant differences in design and operation. Major differences include lower tank diameter-to-depth ratios, longer hydraulic retention times, and processes for aeration and oxygenation. These design and operational differences increase the difficulty of relying on the primary rotating flow to create self-cleaning conditions. The results of this study highlight this difficulty and propose a potential solution by utilizing a separate method that creates and/or enhances the radial current needed. The proposed solution of a pipe around the tank perimeter with water jets flowing towards the tank center drain combined with a method that creates a primary rotating flow resulted in the highest proportion of the tank bottom velocities in the ideal range of 15–25 cm/sec for self-cleaning.

For the complete report, contact Brian Vinci.



Quantitative Hydrodynamic Performance Summary for Select Scenarios



General Design Arrangements for Super-Intensive Shrimp Tank Model with Pumped Inlets

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BECOME A CORPORATE SUPPORTER

Any member of the AES can become a Corporate Supporter by paying an additional annual fee of $100. As a supporter, you have the following additional benefits to your AES membership:

Listing your company as a supporter in the AES newsletter + Posting your company as a supporter on the AES website + Posting job openings on the AES website + Additional employees can join for half off!

MEMBERSHIP REPORT

Current Membership	(as of February 14, 2025)
Membership	234
Membership + Online	12
Membership + Hardcopy	13
Lifetime Member	7
Corporate Supporter + Online	1
Corporate Supporter + Hardcopy	2
Corporate Supporter	2
Student	80
Total	351

FINANCIAL REPORT

Account Balances	(as of February 14, 2025)
Checking	$19,006.61
Savings	$51,405.28
Total	$70,411.28

Aquaculture Facility for Lease / Sale

4022 Tech Park Blvd., Auburn, NY 13021

Building Size:
- 43,000 SF
- 4,778 SF office
- 7,400 SF industrial with 17’ ceilings
- 30,822 SF industrial with 21’ ceilings
- Build Out: 2022 Completion

Condition:
- Water Drained, Dry
- Move-in Ready
- Permitted Use
- Supportive Local Government

Design:
- Mixed Cell RAS, JLH Design
- 8 Grow Out Raceways – Reinforced Concrete
- 3 Fingerling Round Tanks
- 2 Smolt Raceways – Steel
- 2 Finishing Raceways – Steel
- Hatchery
- Cold Processing Room

Videos of the Facility
https://vimeo.com/1055719719
https://vimeo.com/652507314

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