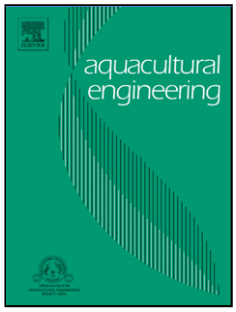
Accepted Manuscript



Title: Development of a Zero Water Discharge (ZWD) – Recirculating Aquaculture System (RAS) Hybrid System for Super Intensive White Shrimp (*Litopenaeus vannamei*) Culture under Low Salinity Conditions and Its Industrial Trial in Commercial Shrimp Urban Farming in Gresik, East Java, Indonesia

Authors: Gede Suantika, Magdalena Lenny Situmorang, Jonathan Berlian Kurniawan, Sherly Arista Pratiwi, Pingkan Aditiawati, Dea Indriani Astuti, Fahma Fiqhiyyah Nur Azizah, Yovita Astuti Djohan, Usman Zuhri, Togar Mangihut Simatupang

PII: S0144-8609(17)30262-5
DOI: https://doi.org/10.1016/j.aquaeng.2018.04.002
Reference: AQUE 1940

To appear in: *Aquacultural Engineering*

Received date: 11-12-2017
Revised date: 22-4-2018
Accepted date: 26-4-2018

Please cite this article as: Suantika G, Situmorang ML, Kurniawan JB, Pratiwi SA, Aditiawati P, Astuti DI, Azizah FFN, Djohan YA, Zuhri U, Simatupang TM, Development of a Zero Water Discharge (ZWD) – Recirculating Aquaculture System (RAS) Hybrid System for Super Intensive White Shrimp (*Litopenaeus vannamei*) Culture under Low Salinity Conditions and Its Industrial Trial in Commercial Shrimp Urban Farming in Gresik, East Java, Indonesia, *Aquacultural Engineering* (2010), https://doi.org/10.1016/j.aquaeng.2018.04.002

Development of a Zero Water Discharge (ZWD) – Recirculating Aquaculture System (RAS) Hybrid System for Super Intensive White Shrimp (*Litopenaeus vannamei*) Culture under Low Salinity Conditions and Its Industrial Trial in Commercial Shrimp Urban Farming in Gresik, East Java, Indonesia

Gede Suantika[1*] · Magdalena Lenny Situmorang[1] · Jonathan Berlian Kurniawan[2] · Sherly Arista Pratiwi[2] · Pingkan Aditiawati[1] · Dea Indriani Astuti[1] · Fahma Fiqhiyyah Nur Azizah[3] · Yovita Astuti Djohan[1] · Usman Zuhri[4] · Togar Mangihut Simatupang[5]

[1]Microbial Biotechnology Research Group, School of Life Sciences and Technology, Institut Teknologi Bandung, Jalan Ganesha No. 10 Bandung 40132 Indonesia.
*E-mail: gsuantika@sith.itb.ac.id

[2]Biology Study Program, School of Life Sciences and Technology, Institut Teknologi Bandung, Jalan Ganesha No. 10 Bandung 40132 Indonesia

[3]Biomanagement Study Program, School of Life Sciences and Technology, Institut Teknologi Bandung, Jalan Ganesha No. 10 Bandung 40132 Indonesia

[4]Commercial Shrimp Nursery and Grow-out "UD. Popular", Desa Cerme Lor, Kec. Cerme, Kab. Gresik, East Java, Indonesia

[5]Operation and Performance Management, School of Business and Management, Institut Teknologi Bandung, Jalan Ganesha No. 10 Bandung 40132 Indonesia

Highlights

- A hybrid ZWD-RAS system was designed to increase shrimp yields by maintaining culture stability of both water quality and microbial load, even at higher densities.
- The hybrid system could maintain both water quality and microbial load stability.
- The hybrid system in the semi-mass trial resulted in a shrimp yield up to 4.8 kg/m^3 with a grow-out period of 84 days.
- The hybrid system at the industrial trial resulted in a shrimp yield of 2.7 kg/m^3 with a grow-out period of 60 days.

Abstract