AquaVitae

Case study 5 – Biofloc and pond-based IMTA

KEYWORDS

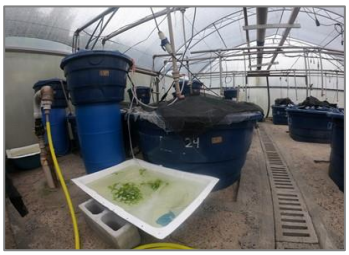
Integrated Multi-Trophic Aquaculture, biofloc technology (BFT), shrimp, seaweed, oyster, mullet

SPECIES

- *Litopenaeus vannamei* (Pacific white shrimp)
- *Ulva sp.* (seaweed)
- *Crassostrea gasar* (oyster)
- *Mugil liza* (mullet)








GEOGRAPHICAL BOUNDARIES

The case study on biofloc and pond-based IMTA will take place in Brazil in three different states: Rio Grande do Norte; Santa Catarina and Rio Grande do Sul.

GOALS

- Enhance the biofloc technology (BFT) by adjusting production parameters.
- Develop a biofloc system using Integrated Multi-trophic Aquaculture (IMTA) concepts, improving efficiency in the use of natural resources.
- Design, implement and carry out a profit and sustainable pond-based IMTA farming in Northeastern Brazil with shrimp, seaweed and oyster species.

AT A GLANCE

- **Project period: 2019-2023.**
- **Scale-up biofloc and IMTA systems.**
- **Adjustment of production parameters to improve production in biofloc (shrimp).**
- **Enhance biofloc sustainability and performance by developing different IMTA systems combining shrimp with other low-trophic species.**
- **Increase yield and profitability of shrimp production in biofloc systems with mullets and seaweed.**
- **Develop a profitable and sustainable pond-based IMTA system with shrimp, seaweed and oyster.**

Main activities take place in Rio Grande do Norte, Santa Catarina and Rio Grande do Sul (Brazil).

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CHALLENGES

- Improve shrimp production in biofloc systems.
- Develop an IMTA system with biofloc using shrimp and species from low-trophic levels as mullets and seaweed.
- Develop an IMTA pond-based farming in Northeastern Brazil with shrimp, seaweed and oyster.

EXPECTED RESULTS

- Improve biofloc system sustainability and performance by developing an IMTA system using low-trophic species.
- Improve shrimp production in biofloc system increasing yield and profitability.
- Develop a profitable and sustainable pond-based IMTA system with shrimp, seaweed and oyster.

EXPECTED USERS

- Small and medium-sized (SMEs) shrimp farms
- Government organizations that regulate aquaculture activities
- Institutes and universities researching on shrimp and IMTA systems

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WORKPLAN

A series of trials will be run through the lifetime of AquaVitae. The trials for adjusting biofloc production parameters (aeration, and carbon and nitrogen ratios) will be developed by FURG.

The IMTA system using biofloc technology will focus on the integration of shrimp, mullet, and seaweed, seeking to improve system performance and sustainability. USFC and FURG are in charge of this task

In Rio Grande do Norte, the oyster farm Primar Aquacultura Orgânica will implement an integrated pond-based system to produce shrimp, seaweed and oyster with the collaboration of UNESP and Embrapa.

TEAM

1. Universidade Federal de Santa Catarina- UFSC (Brazil)
2. Universidade Federal de Rio Grande- FURG (Brazil)
3. Universidade Estadual Paulista- UNESP (Brazil)
4. Empresa Brasileira de Pesquisa Agropecuária - EMBRAPA (Brazil)
5. Primar Aquacultura Orgânica (Brazil)
6. Universidade do Porto (Portugal)
7. University of New England (USA)

LINKS

Webinar on IMTA & Biofloc:
https://bit.ly/av-webinar-ufsc

Webinar on Seaweed & IMTA:
https://bit.ly/av-seaweed-component-imta

Scientific paper macroalgae & biofloc effluent:
https://bit.ly/av-macroalgae-biofloc-effluent

Scientific paper feed additive for shrimp:
https://bit.ly/feed-additive-shrimp

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