

BIG NEWSLETTER

FALL 2024



TOP NEWS

- AQUAPONICS RESEARCH IS UNDERWAY!
- ALGAE GROWTH AND RESEARCH
- PUBLISHED WORKS
- AQUAPONICS ASSOCIATION CONFERENCE 2024
- EDUCATIONAL RESOURCES



ABOUT WHEN BLUE IS GREEN (BIG)

The big project is a 5-year USDA funded Purdue lead research project that focuses on sustainable agricultural systems. Our goal is to increase local and regional production of adequate, nutritious, and affordable sea foods with a minimal environmental footprint to ultimately diversify US agricultural systems and dietary patterns.

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Aquaponics intensively produces a diverse array of nutritious blue foods and specialty crops, but this emerging food production system faces intertwined technical, economic, and environmental challenges that are...

 Purdue University

CHECK-OUT OUR [WEBSITE!](#)

ALGAE!

Our team has published 3 journal articles with algae as the focus. The subjects have included; algae derived compounds, algae and bacteria, and the performance of cyanobacteria and green algae. In addition to these publications a new algae growth unit has been built in the greenhouse. This unit is 168-gallons and includes multiple tanks. Currently, this system grows Tetraselmis and Chlorella algae.



THE GREEN HOUSE!

Our pilot aquaponics research is well underway. We have conducted three different experiments with lettuce growth patterns. In total we have 22 pilot scale aquaponics systems and we have produced 292 pounds of tilapia and 445 pounds of lettuce.



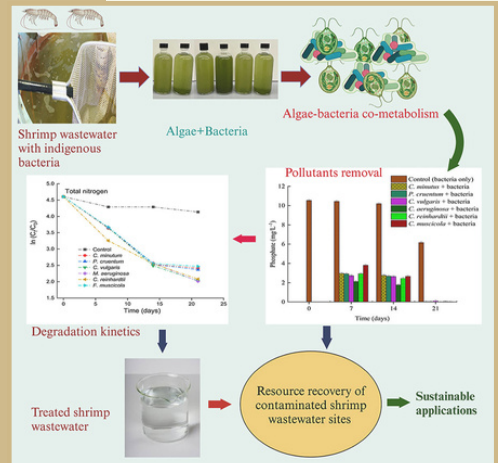
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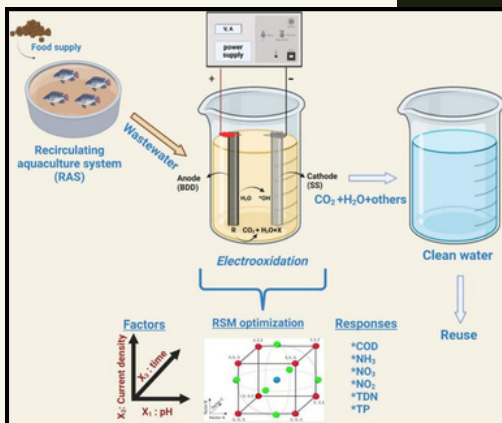
BIG PUBLISHED WORKS

BIODEGRADABILITY AND BIOAVAILABILITY OF DISSOLVED SUBSTANCES IN AQUACULTURE

This study investigated the impact of algae and indigenous bacteria on treating shrimp wastewater. A total of four different microalgae cultures, including Chlorococcum minutus, Porphyridum cruentum, Chlorella vulgaris and Chlorella reinhardtii along with two cyanobacterial cultures, Microcystis aeruginosa and Fishcherella muscicola were used with indigenous bacterial cultures to treat shrimp wastewater... [Read the full abstract and article here!](#)



OPTIMIZING ELECTROCHEMICAL METHODS FOR FISH WASTEWATER TREATMENT IN RECIRCULATING AQUACULTURE SYSTEMS



In this study, electrooxidation (EO) treatment methods using a boron-doped diamond (BDD) electrode was employed to remove soluble chemical oxygen demand (sCOD), ammonia (NH₃-N), nitrate (NO₃-N), nitrite (NO₂-N), total dissolved phosphorus (TDP), and total dissolved nitrogen (TDN) from aquaculture wastewater. Response surface methodology (RSM) was used to design experiments and optimize operating parameters. [Read the full article!](#)

ALGAE-DERIVED COMPOUNDS: BIOACTIVITY, ALLERGENICITY AND TECHNOLOGIES ENHANCING THEIR VALUES

As a rapidly growing source of human nutrients, algae biosynthesize diverse metabolites which have promising bioactivities. However, the potential allergenicity of algal components hinder their widespread adoption. This review provides a comprehensive review of various macro and micronutrients derived from algal biomass, with particular focus on bioactive compounds, including peptides, polyphenols, carotenoids, omega-3 fatty acids and phycocyanins. [Read more about the findings here!](#)

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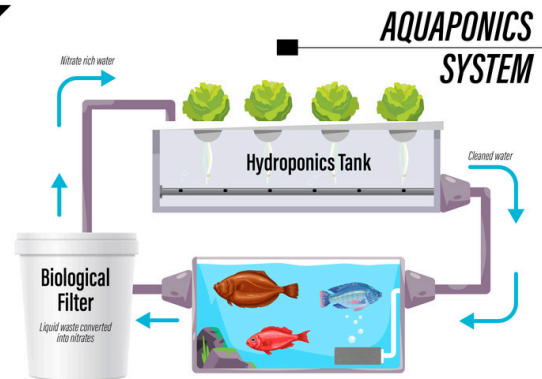
ONGOING RESEARCH

During the next few months of our project we will continue our aquaponics, economic, alga and anaerobic digestion research. we will also be beginning our consumer research. We will also be continuing our educational material development.



AQUAPONICS ASSOCIATION CONFERENCE 2024

This year we will be returning to the Aquaponics Association Conference! Our team will be hosting a booth from September 13th-15th. We will also be hosting a focus group session.



WEBSITE RESOURCES

We have recently posted some educational graphics and information to our website. If you are interested in learning more about the elements of our research please visit our website and explore!