USE OF ENVIRONMENTAL SUSTAINABILITY INDICATORS TO COMPARE DIFFERENT AQUACULTURE PRODUCTION SYSTEMS

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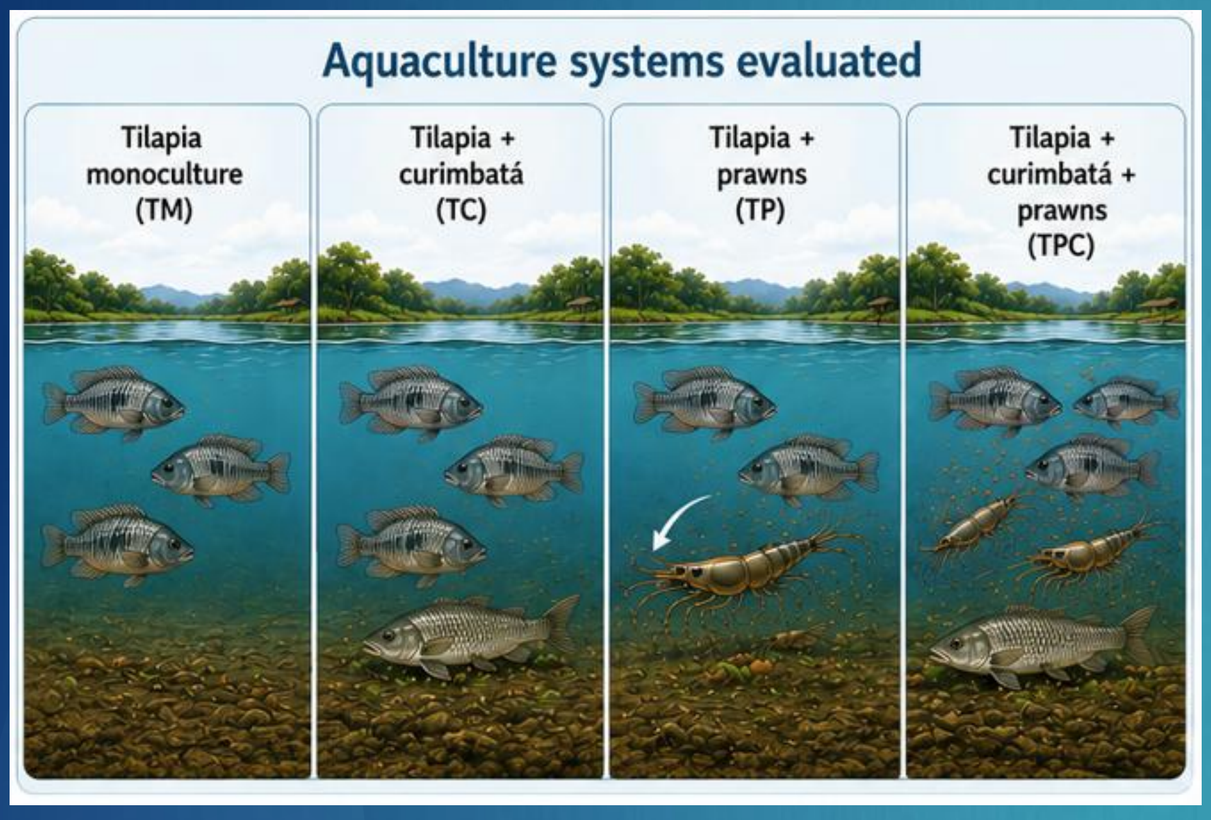
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Objective

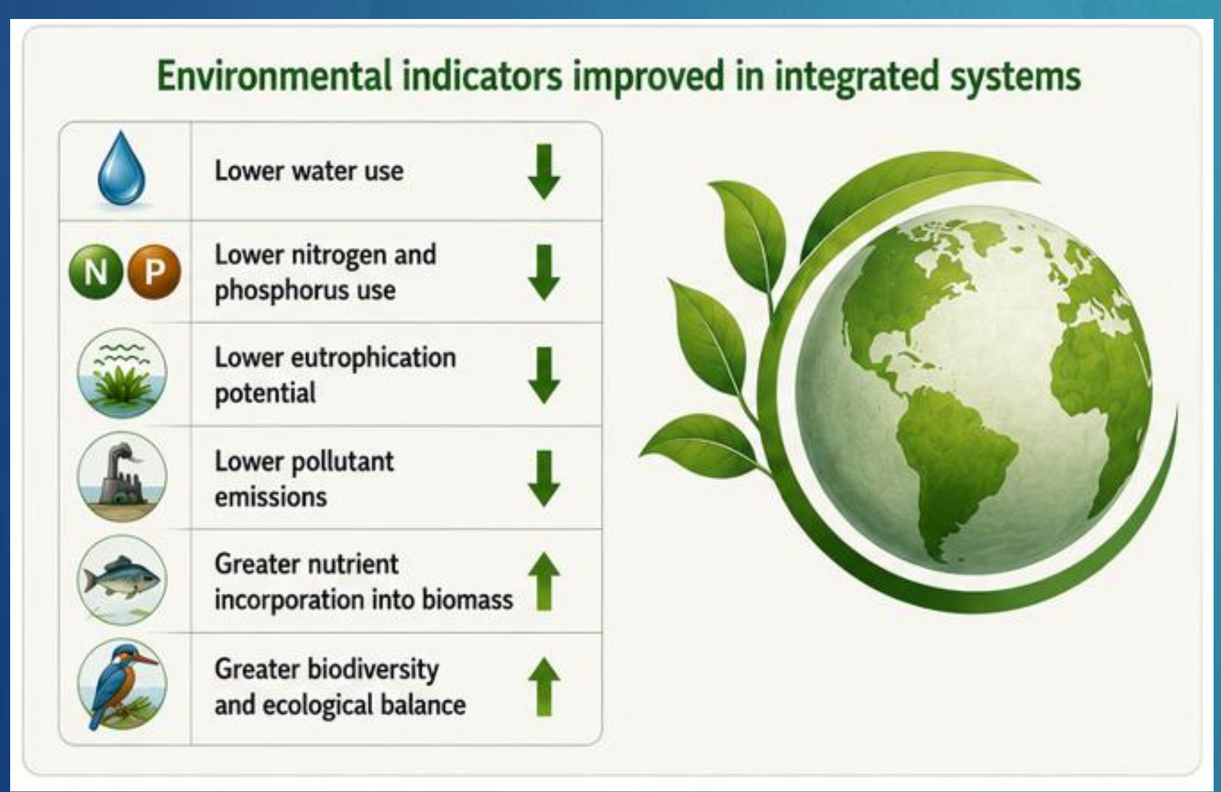
This study evaluated the environmental sustainability of integrated systems composed of species with **complementary functional characteristics** compared to fed monocultures.

Material and methods

A randomized experiment was conducted with **four treatments** and **three replicates**. The treatments were: Nile tilapia monocultures (**TM**), tilapia integrated with curimbatá (**TC**) and tilapia integrated with prawns (**TP**), and the three species together (**TPC**).



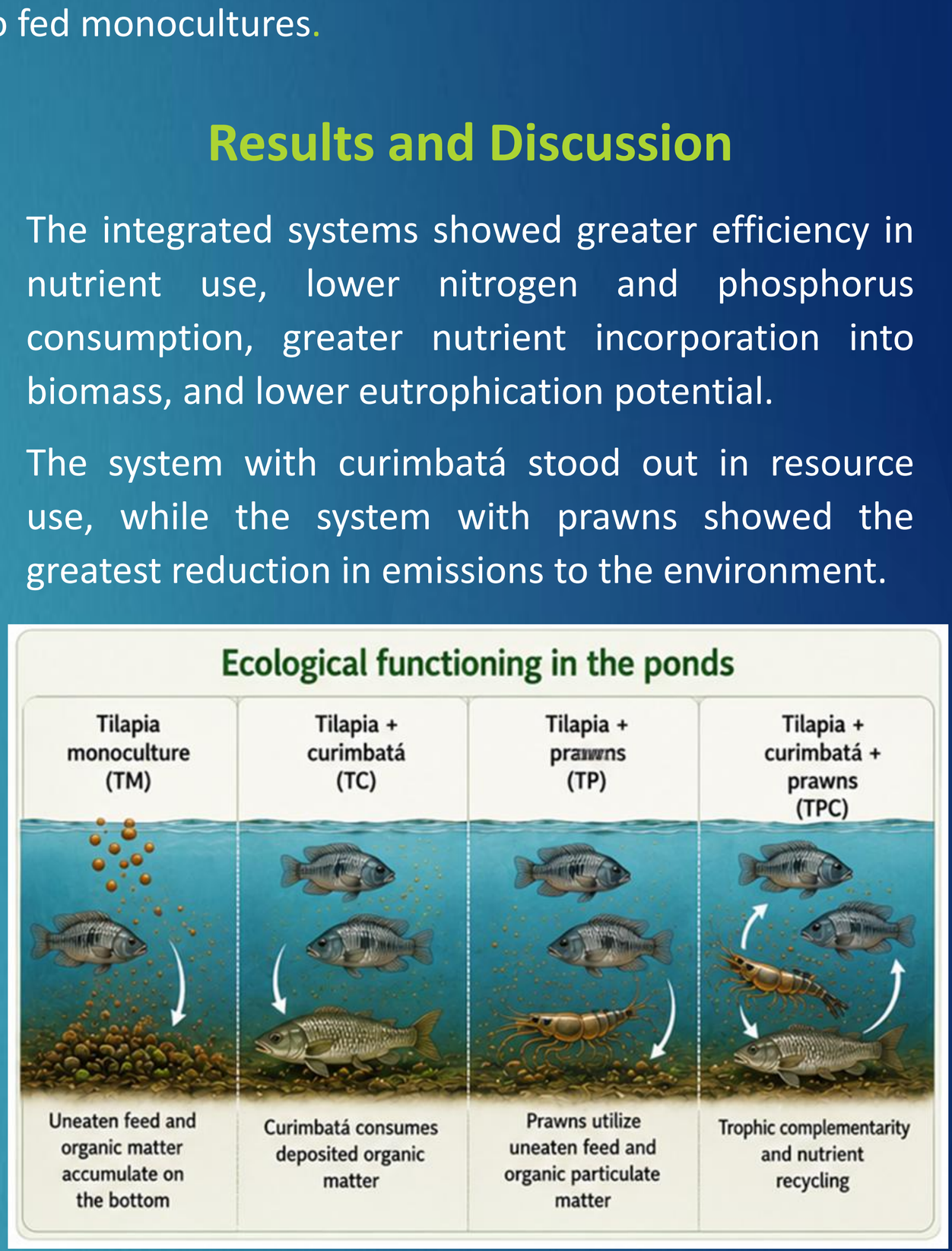
Environmental sustainability was assessed using **14 indicators** applied to experimental results related to resource use, resource-use efficiency, pollutant release, and risk to biodiversity (following Valenti et al., 2018).

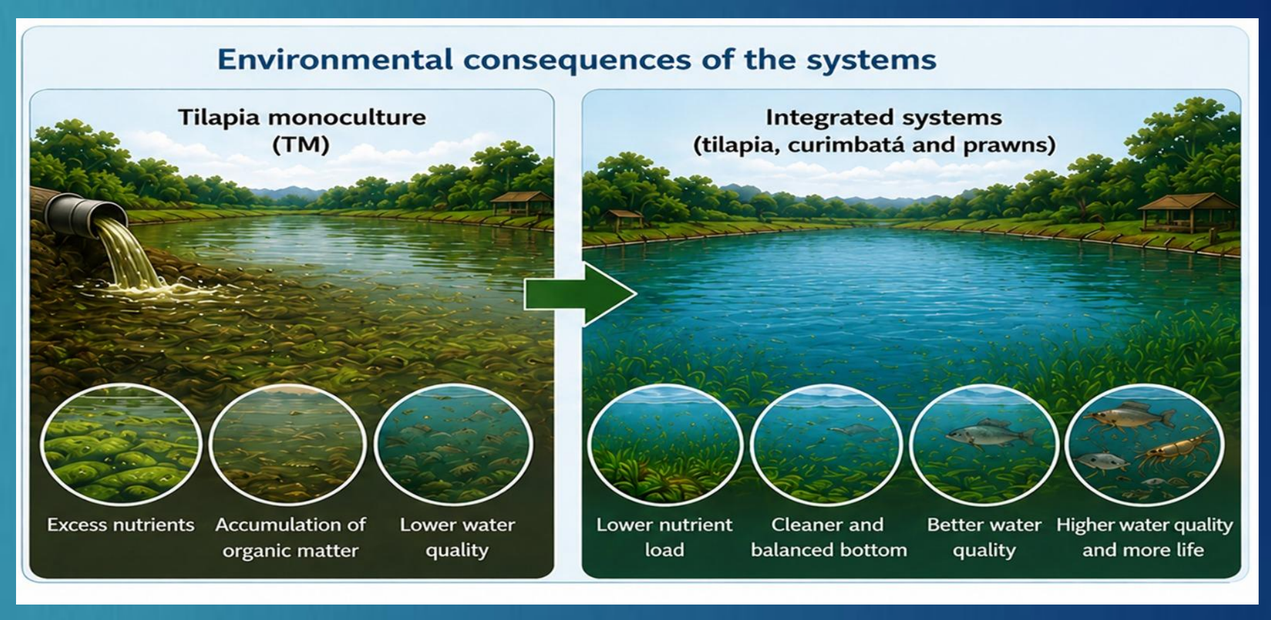


Results and Discussion

The integrated systems showed greater efficiency in nutrient use, lower nitrogen and phosphorus consumption, greater nutrient incorporation into biomass, and lower eutrophication potential.

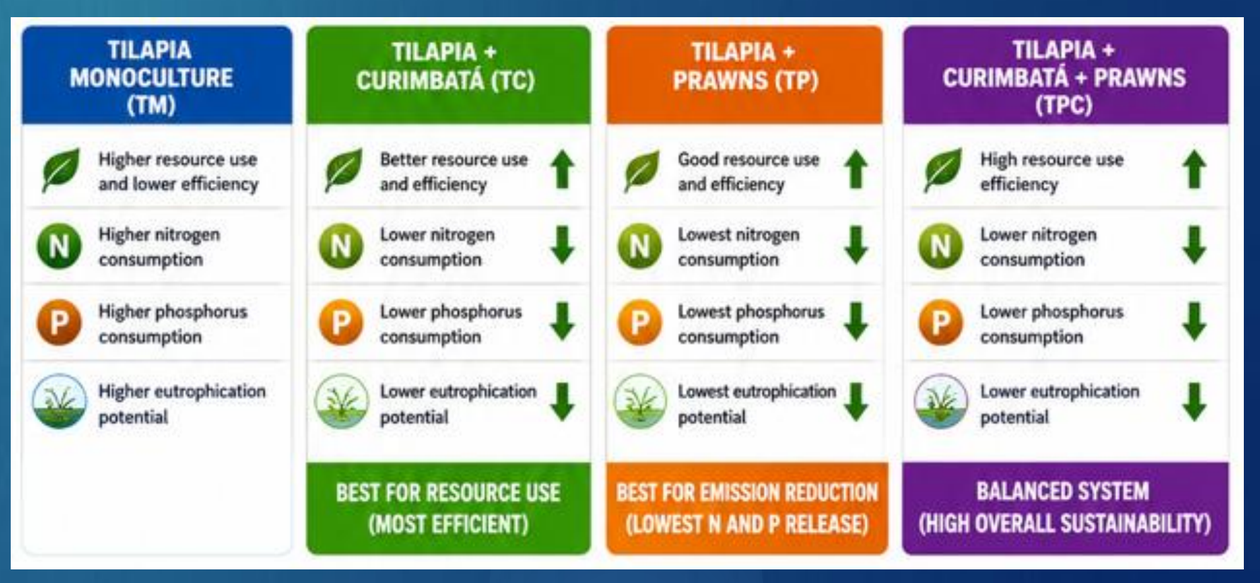
The system with curimbatá stood out in resource use, while the system with prawns showed the greatest reduction in emissions to the environment.





Conclusion

The **integrated systems were more sustainable** in the **environmental dimension** due to **trophic complementarity and nutrient recycling**, compared to the traditional monoculture system.



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