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(57) Abstract :

The present invention discloses a biofloc-based aquaculture system designed to optimize fish farming efficiency through microbial biofloc formation and advanced water quality management. The system comprises culture tanks made of HDPE or reinforced cement, an aeration system with high-performance blowers and diffusers, dedicated biofloc reactors for microbial growth, water quality monitoring instruments, automated or manual feeding mechanisms, and a filtration and recirculation system to maintain biofloc equilibrium. The method involves stocking fish, aerating the culture tanks, introducing microbial inoculants, monitoring water parameters, and utilizing biofloc as a natural feed source. This sustainable, closed-loop aquaculture system minimizes water exchange, reduces feed costs, enhances biosecurity, and supports high-yield fish production with improved economic viability.

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