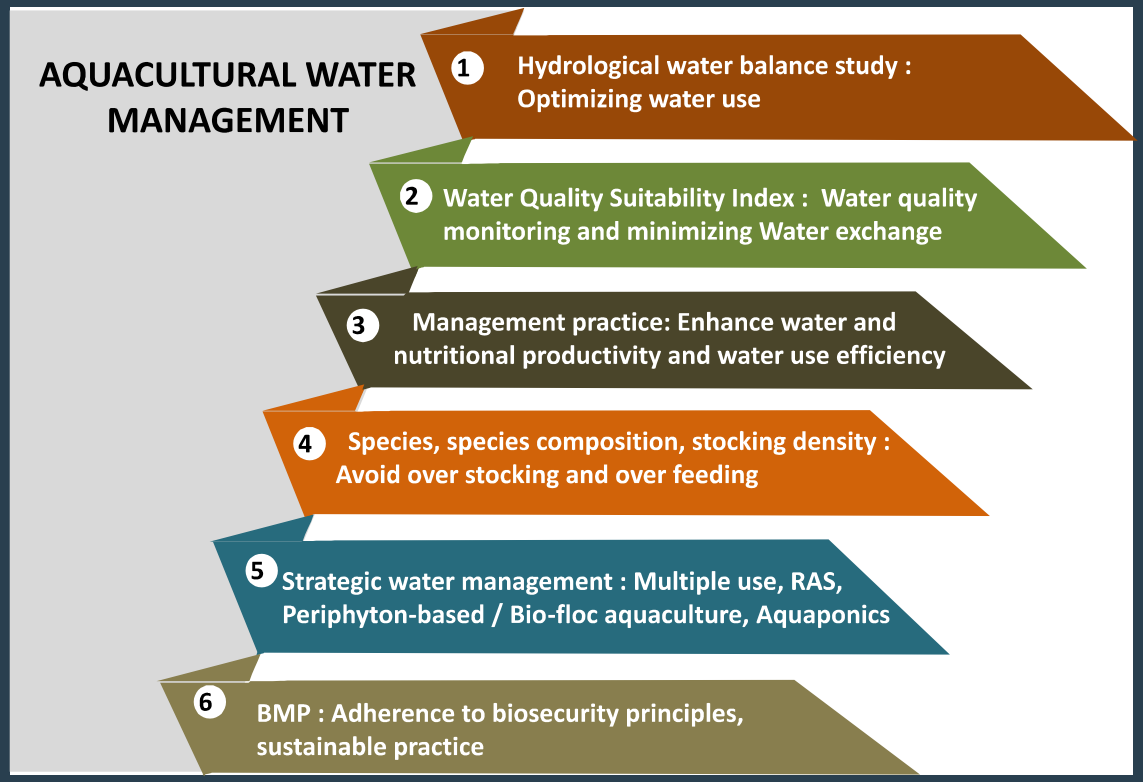
Density-dependent Water Use and Management in High Value Aquaculture



Factors affecting water management in aquaculture

Experimental site at Chandipur, Balasore, Odisha

Developed by

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RELEVANCE

- Water budgeting using a hydrological water balance model assist in estimation of total demand for brackish water shrimp monoculture and carp polyculture.
- Density-dependent demand-driven water use improves WUE and water productivity and lessens total water footprint.

DESCRIPTION

- At an optimal stocking density of 5 lakh post-larvae ha^{-1}, Pacific white shrimp (*L. vannamei)* requires 1.72 m^3 of water to produce 1 kg of shrimp biomass.
- At an optimum stocking density of 2.5 lakh post-larvae ha^{-1}, Black tiger shrimp (*P. monodon*) requires 4.2 m^3 of water to produce 1 kg of shrimp biomass.
- In carp polyculture, at the optimum stocking density of 8000 fingerlings ha^{-1}, only 3.3 m^3 of water is required to produce 1 kg of carp biomass.

BENEFITS

- Density-dependent demand-driven water use improves water quality and minimizes unnecessary water exchange, pumping cost, sediment load, pollution potential, and effluent output.
- In India, this technology can be implemented in around 12 lakh ha (brackish water aquaculture area) and 2.3 million ha (freshwater aquaculture area).