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An approach to modelling nitrogen dynamics in intensive shrimp culture pond

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The emerging thought of minimizing nutritional deficiencies and food security by fisheries is an idealistic move in India. Shrimp culture has expanded as a large scale business and technological advances have led to intensive culture. Highly proteinaceous feed provided to fishes cultured in intensive system is the major Nitrogen (N) source. This leads to the accumulation of anoxic sludge and a part of it remineralizes to enter the water column as harmful total ammoniacal nitrogen (TAN) and may have a devastating impact on the shrimp or on the adjacent aquatic environment when water is discharged from ponds. Therefore, in the present study a user friendly spreadsheet model for prediction of concentrations of inorganic nitrogenous compounds and chlorophyll -a (CHL) in intensive shrimp (Penaeus monodon) ponds has been developed to predict the concentrations of various important water quality parameters. This model, once calibrated and validated for a particular shrimp farm, will serve as a useful predictive tool in deciding the water quality management practices like water exchange or sludge removal to be adopted when the concentrations of parameters reach their permissible limits. This is essentially helpful for farmers and entrepreneurs who do not have access to daily water quality measurement facilities.

Biography

Mohd Tanveer has completed M.Tech in Aquacultural Engineering from Indian Institute of Technology, Kharagpur (W.B.). Presently he is a senior research fellow at Indian Institute of Technology, Kharagpur. He has an industrial experience of aquaculture farm design and construction. He has attended many international and national conferences and also publised papers in international journals.