

Abstract

Reports of similar yields in manure and feed-driven tilapia culture environments raise questions on food utilization in these environments. The possibility that similar production rates are because of utilization of different foods was investigated using exploratory techniques of multivariate analyses. Using factor analysis, trophic pathways through which food becomes available to fish were explored, and using anova models, water quality, sediment quality and tilapia growth and yields were compared. Conceptual graphic models of the main ecological processes occurring in feed-driven and organically fertilized environments are presented and discussed. In both environments, autotrophic and heterotrophic pathways are important processes that result in the availability of natural foods that are utilized by the fish. Extrapolated fish yield data indicate that with equal nutrient input and stocking density, organically fertilized environments could achieve production rates similar to those in feed-driven environments. The general assumption that supplemental or complete foods are well utilized by tilapia in outdoor stagnant ponds remains challenged, and further research on tilapia feeding behaviour and food selection in feed-and organic fertilizer-driven environments is needed.