Effects of water quality, flooding episode and management variables on the yield from self-stocked ponds in lower Rufiji floodplain, Tanzania.

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Abstract

A study was conducted to determine yields of Oreochromis urolepis from flood depended ponds in Rufiji floodplain, Tanzania. Eight ponds were constructed during dry season in two sites besides two floodplain lakes, Ruwe and Uba. These ponds were self-stocked with different fish species from the lakes. More than eight species were trapped and O. urolepis was considered as a good candidate for aquaculture. Other fish species were harvested immediately after flood recession and O. urolepis was cultured for the maximum of six months. Some species like Labeo congoro and Clarias gariepinus were redistributed in the ponds. However, other species in small quantities were remained in the ponds for the whole period of experiment. Water quality parameters were monitored throughout the study period. The relationships between water quality variables and flooding events were determined using canonical correspondence analysis (CCA). Other parameters included in the relationships were fish density, manure and number of species trapped and cultured. Dissolved oxygen and pH decreased with time in both sites. Fish yields were influenced by some water quality and flooding episode variables. Chlorophyll-a was the only environmental variable that showed a significant correlation with fish yield ($P< 0.01$). Fish density and number of species trapped showed a significant effect on the fish yield (P

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