Tilapia yields and water quality were compared in 1000-m² grow-out ponds that were unaerated, or aerated beginning at 10 or 30% of oxygen saturation. Tilapia yield and individual final size were significantly greater in aerated ponds than in unaerated ponds, but there were no significant differences between levels of aeration. Treatment means of organic-N, total P, chlorophyll a, net primary productivity, and total volatile solids were not significantly different. However, aeration caused higher clay turbidity as indicated by significantly higher total fixed solids and lower Secchi disk visibility in aerated treatments. Maintenance of oxygen above minimal levels augmented tilapia yields, but additional research is needed to make aerator use in tilapia culture more efficient and profitable.

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