

Thyroid function of steatitis-affected Mozambique tilapia *Oreochromis mossambicus* from a sub-tropical African reservoir

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ABSTRACT:

Thyroid function and nutritional indicators were measured in obese, steatitis-affected Mozambique tilapia *Oreochromis mossambicus* from Loskop Reservoir (LR), South Africa. Plasma thyroid hormones (especially T3) and thyroid follicle histomorphology revealed high levels of activity in every aspect of the thyroid cascade measured in fish from LR compared to a reference population of steatitis-free fish. Concurrent measurements of nutritional state including plasma lipids, liver lipid content and hepatocyte size showed that fish from LR had significant energy stores indicative of abundant nutritional intake. There were distinct sex and seasonal differences, with the highest plasma lipids and T3 levels observed in steatitis-affected females during spring and summer. Positive correlations were observed between plasma lipids (especially cholesterol) and T3 concentrations in fish from both populations, indicating a link between lipid metabolism and thyroid function. There was no direct evidence of thyroid disruption, but this cannot be ruled out until further research determines the factors that underlie the homeostatic shift leading to elevated plasma and liver lipids and T3 levels in steatitis-affected tilapia.