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## **On-Site Classification of Pansteatitis in Mozambique Tilapia (*Oreochromis mossambicus*) using a Portable Lipid-Based Analyzer**

**John A. Bowden, Stephen E. Somerville, Theresa M. Cantu<sup>2</sup>, Matthew P. Guillette<sup>2</sup>, Hannes Botha, Ashley S. P. Boggs, Wilmien Luus-Powell, and Louis J. Guillette Jr.**

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### **Abstract**

While no pansteatitis-related large-scale mortality events have occurred since 2008, the current status of pansteatitis (presence and pervasiveness) in the Olifants River system and other regions of South Africa remain largely unknown. In part, this is due to both a lack of known biological markers of pansteatitis and a lack of suitable non-invasive assays capable of rapidly classifying the disease. Here, we propose the application of a point-of-care (POC) device using lipid-based test strips (total cholesterol (TC) and total triglyceride (TG)), for classifying pansteatitis status in the whole blood of pre-spawning Mozambique tilapia (*Oreochromis mossambicus*). Using the TC strips, the POC device was able to non-lethally classify the tilapia as either healthy or pansteatitis-affected; the sexes were examined independently because sexual dimorphism was observed for TC (males  $p = 0.0364$ , females  $\chi^2 = 0.0007$ ). No significant difference between diseased and pansteatitis-affected tilapia was observed using the TG strips. This is one of the first described applications of using POC devices for on-site environmental disease state testing. A discussion on the merits of using portable lipid-based analyzers as an in-field disease-state diagnostic tool is provided.