

# Influence of the annual flood-pulse on catch per unit effort, condition and reproduction of *Clarias gariepinus* from the upper Okavango Delta, Botswana

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## Abstract

Catch per unit effort (CPUE), length, weight and maturity data for *Clarias gariepinus* were collected during monthly gillnet surveys in the upper Okavango Delta between 2001 and 2009 to investigate their relationship with the annual flood-pulse. CPUE, condition factor ( $K$ ) and the proportion of ripe-running fish ( $P_{RR}$ ) in the population followed a unimodal annual cycle that could be modelled using water temperature and flood-pulse hydrology. Increased CPUE during declining water levels was most likely a result of feeding migrations and aggregation behaviour. The observed increase in  $K$  during low floods in October and November preceded the increase in  $P_{RR}$ , which increased mainly with increasing temperature but appeared less dependent on flow. This study provided quantitative evidence that the biology of fish in the Okavango Delta is mainly dependent on the annual flood regime and, therefore, that conservation efforts should be focused on maintaining natural flow patterns in the face of climate change and potential water extraction schemes upstream.