

Seasonal Changes in Maturity Stages of Female and Hermaphrodite Gonads of *Mesopotamichthys sharpeyi* (Günther, 1874) from Southern Missan Province Marshes, Southern Iraq

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ABSTRACT

The study investigated the seasonal variations in the maturity stages of female *Mesopotamichthys sharpeyi* (the brown bunti) and the occurrence of histological hermaphroditism. From February 2022 to January 2023, a total of 95 specimens were collected from the marshes in southern Missan Province, Iraq. The fish ranged in total length from 19.5 to 41.5cm and weighed between 107 and 1500g. The gonadosomatic index (GSI) values fluctuated throughout the year, with the lowest value at 0.25 in August and the highest value reaching 12.98 in March. The study confirmed that the spawning season of *M. sharpeyi* extends from March to April. Six maturity stages were determined through both visual and histological examination. Histological analysis revealed the presence of hermaphroditism in some gonads, where both female and male tissues were observed.

INTRODUCTION

Mesopotamichthys sharpeyi, commonly referred to as the bunti, is a commercially important species in the Cyprinidae family. Initially classified under the *Barbus* genus, it was later reassigned to the *Mesopotamichthys* genus (Jassim, 2012; Kouame *et al.*, 2018), native to the Tigris and Euphrates river basins. This reclassification highlighted the need for a deeper understanding of the species' reproductive strategies compared to previous studies.

Research into fish reproduction is vital for the effective management and conservation of fisheries resources, particularly in light of the species' life cycle (Uyan *et al.*, 2020). To understand reproduction is crucial for addressing the effects of environmental shifts on fish populations and improving commercial aquaculture. The reproductive process plays a key role in fish recruitment, survival of offspring, and adaptation to habitat changes, impacting aquaculture success and the future potential of fish stocks (Balci *et al.*, 2017). Furthermore, such research contributes to understanding how environmental changes affect current fish dynamics, emphasizing the importance of species management (Mehanna, 2022).