

Insights into the population structure of *Plagioscion squamosissimus* from northeastern Brazil using morphological and otolith traits

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INTRODUCTION & AIM

The primary objective of this study was to investigate the population structure of *Plagioscion squamosissimus*, a species harvested by three fishers' associations (Colônias de Pescadores) located in Petrolândia (Pernambuco State), Rodelas (Bahia State) and Olhos D'água do Casado (Alagoas State), within the sub-middle and lower stretches of the São Francisco River basin in the northeastern Brazil. To achieve this, geometric morphometrics analyses of body shape and otolith morphology were applied. Additionally, this study compared alternative methods for detecting variation in both body (truss networking and Procrustes coordinates) and otolith (elliptic Fourier descriptors and wavelet transform coefficients) shape, assessing their discriminatory power in the context of fish stock differentiation. The ultimate goal was to generate insights that support fisheries agencies and decision-makers in the rational and sustainable management of this resource.

METHOD

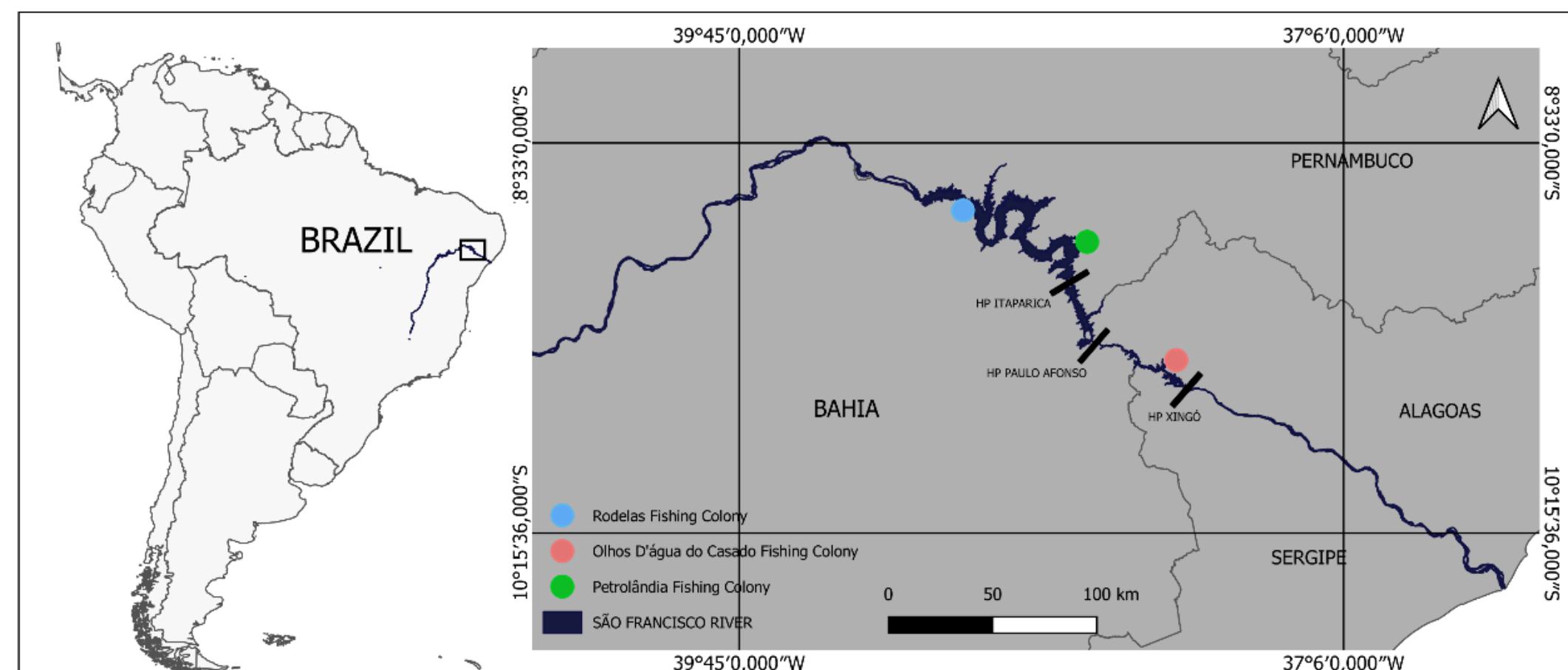


Figure 1. Map showing the three sampling sites of *Plagioscion squamosissimus* caught from September 2023 to March 2024 in the sub medium and lower courses of São Francisco River (Rodelas: Bahia State, Petrolândia: Pernambuco State and Olhos D'água do Casado: Alagoas State), in the northeast region of Brazil.

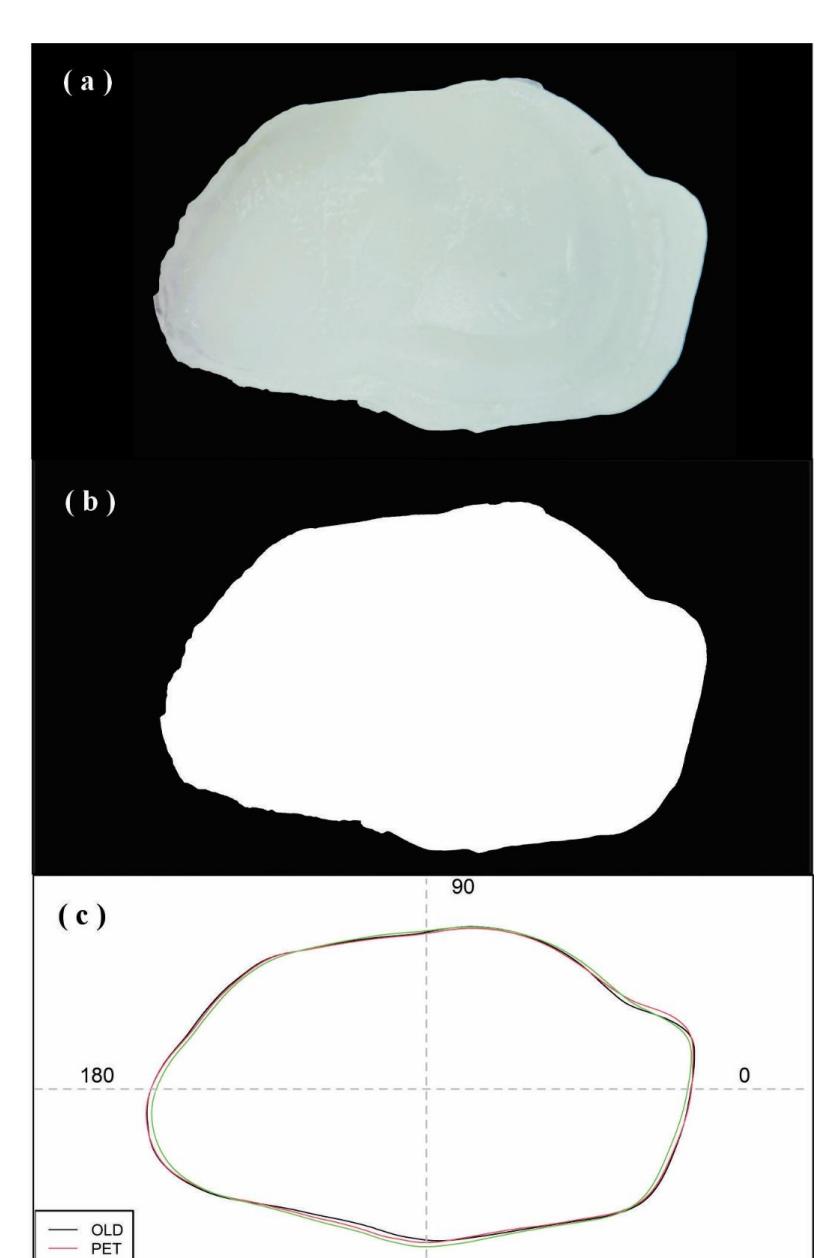


Figure 2. Medial side of a right sagitta from *Plagioscion squamosissimus* for the different sampling sites in the São Francisco river (Olhos D'água do Casado: OLD, Petrolândia: PET and Rodelas: ROD), showing (a) the original photograph, (b) the binary black and white digital image and (c) the otolith averaged outline contour for each site.

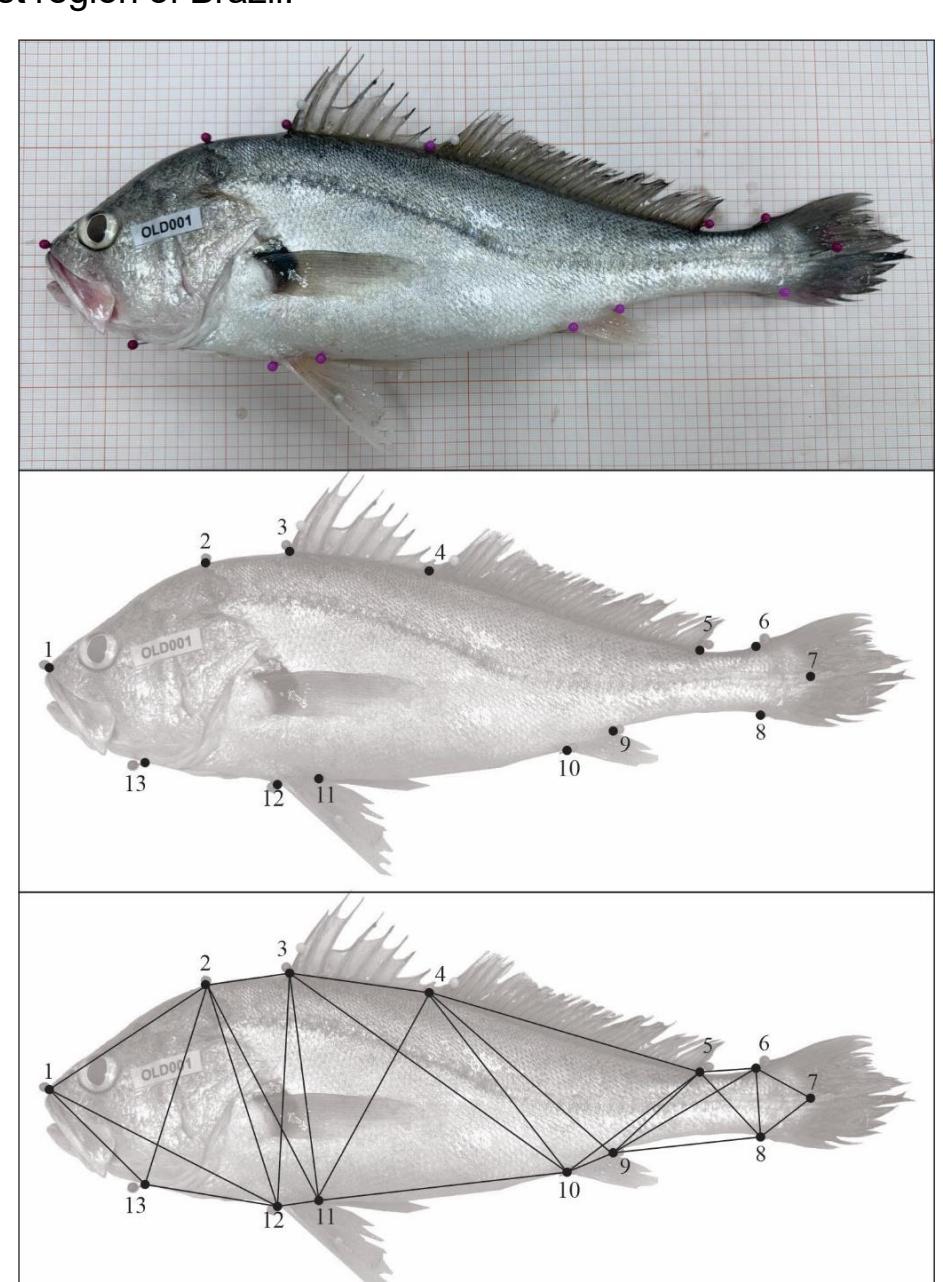


Figure 3. *Plagioscion squamosissimus* personal photograph from a specimen collected from São Francisco River (with a standard length of 33.0 cm) in September 2023 (a), an illustration with the location of the 13 selected body landmarks (b) and the generated body morphometric distances (c).

RESULTS & DISCUSSION

