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Past connection and isolation of catchments: The sea-level changes affect the distribution and genetic variability of coastal freshwater fishes.

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Running title: Catchments dynamic affecting coastal freshwater fishes

Abstract

The Atlantic coast of South America is characterized by a great diversity and endemism of fishes. Past eustatic changes that promoted cycles of isolation, expansion, and connection of coastal catchments are considered putative drivers of genetic differentiation and phylogenetic diversity. It is hypothesized that recent eustatic movements have left signs of impact on the demographic history and local distribution patterns of freshwater fishes. This study addressed the phylogeography and demographic history of two siluriform (*Scleromystax barbatus*, *Rineloricaria* sp.) and one characiform (*Mimagoniates microlepis*) fish species from the coastal plain of the state of Paraná, Paranaguá Bay, Brazil. Nucleotide sequence data of the mitochondrial cytochrome b gene support the hypothesis that the populations of the three species are genetically differentiated at all sampled catchments. Haplotype networks of these populations indicate different histories and include scenarios of secondary contact, population expansion, and isolation. Neutrality tests and the reconstructed patterns of demographic history in mismatch distributions were also consistent with population expansion in the western basins and, in general, secondary contact in the northern basins. Our results are consistent with the reconstructed paleodrainage in the region and with the hypothesis that recurrent

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