



## Taxonomic review of the species of *Mugil* (Teleostei: Perciformes: Mugilidae) from the Atlantic South Caribbean and South America, with integration of morphological, cytogenetic and molecular data

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### Abstract

Analysis of morphological, molecular and cytological data helped to define and more precisely characterize the species of *Mugil* from the Atlantic coasts of South Caribbean and South America, allowing a correction of prior misidentifications and distributional ranges. A new species from Venezuela is described and all the species from the area are redescribed. It is demonstrated that the apparent similarity in morphological traits, which contradicted the results from recent molecular studies, is the result of the misuse of traditional morphological characters, and thus both the molecular and cytological data instead are congruent with the morphological differences that are found among mullet species. The presence of *Mugil hospes* Jordan & Culver in the western south Atlantic is refuted based on the comparison of type material of this species with specimens from this area that also indicated a very significant morphological difference, what on the other hand justifies the recognition of these specimens as *Mugil brevirostris* (Ribeiro). The distribution of *Mugil incilis* Hancock is restricted and the similarities among the species formerly depicted in a prior dendrogram is modified following the inclusion of recently obtained molecular data for *Mugil curvidens* Valenciennes.

**Key words:** *Mugil* species, Taxonomy, Caribbean and South American Atlantic waters, Molecular and Cytologic evidence

specimens deposited at MNHN and Henrique from the BMNH while conducting their own Ph.D projects. Fernando provided assistance in the use of computer programs for the development of the geographical distribution maps of the species. Priscila after several discussions with the fishermen in the Salvador coastal area obtained specimens of *Mugil curvidens* from which tissue samples were taken for molecular studies. Michel D. Gianeti, museum technician (MZUSP), was always available to provide catalog numbers for specimens and move them back and forth from the shelves. Jana M. Favaro (Instituto Oceanográfico, Universidade de São Paulo) deposited at MZUSP part of the specimens collected along the São Paulo coast and herein examined. Nídia N. Fabr e and her former graduate student Jordana Rangely de Almeida Santos (Universidade Federal de Alagoas, Macei o) donated specimens collected during Jordana's thesis project which was supported by the Conselho Nacional de Desenvolvimento Cient fico e Tecnol gico (CNPq) that also supported the research on NAM through a research fellowship (Proc. 300942/2009-5).

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