

**Supplementary material**

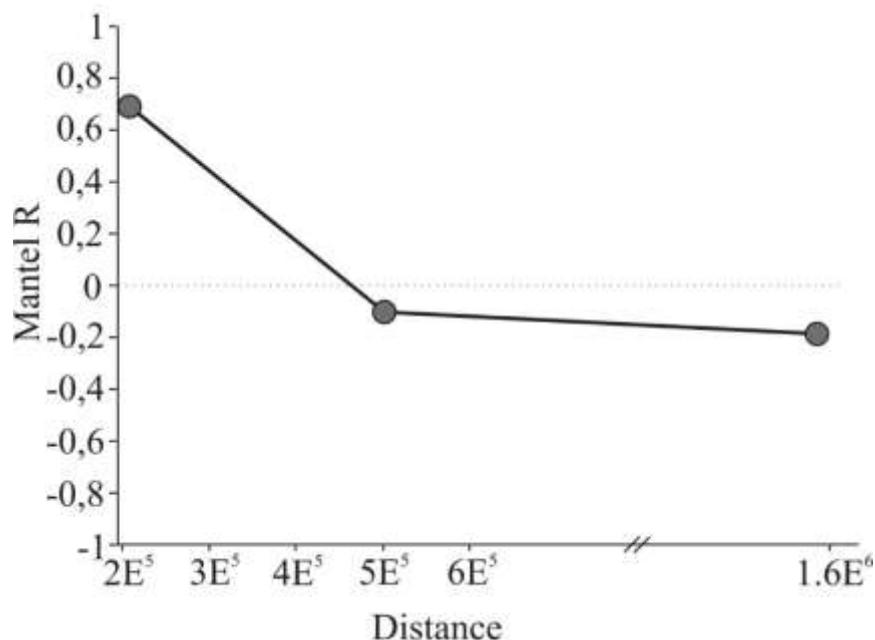
**Genetic relationships between landlocked and coastal populations of *Lycengraulis grossidens* (Engraulidae) in south-eastern South America: evidence for a continental colonisation route with secondary transitions to the coastal region**

Ana C. G. Mai<sup>A,C</sup>, Lizandra J. Robe<sup>B</sup>, Luis F. Marins<sup>B</sup>, João P. Vieira<sup>A</sup>

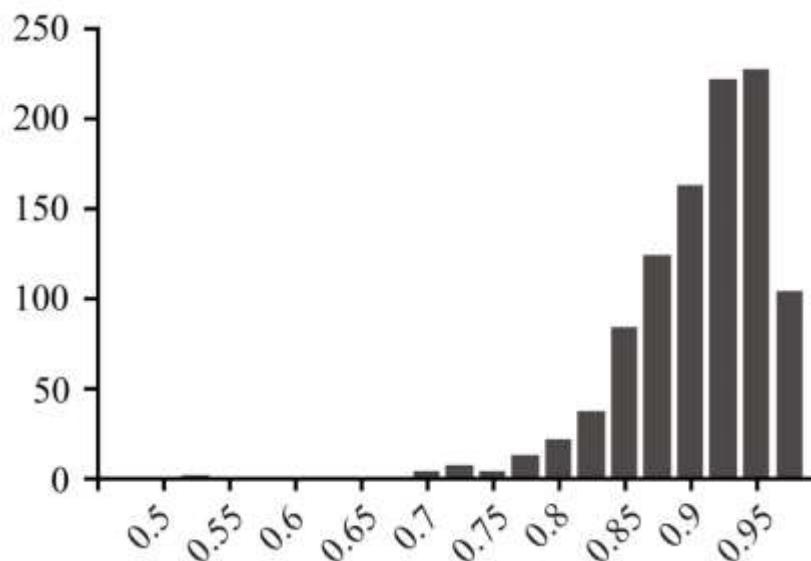
<sup>A</sup>Instituto de Oceanografia, Universidade Federal do Rio Grande (FURG),  
Avenida Italia quilômetro 8, Campus Carreiros, Rio Grande, RS, CEP 96203-900, Brazil.

<sup>B</sup>Instituto de Ciências Biológicas, FURG, Avenida Italia quilômetro 8, Campus Carreiros,  
Rio Grande, RS, CEP 96203-900, Brazil.

<sup>C</sup>Corresponding author. Email: anacecilia\_mai@yahoo.com.br



**Fig. S1.** Correlogram showing the distribution of Mantel correlation along three geographic distances classes (0–400 000 m; 400 000–600 000 m; 600 000–2 650 000 m)



**Fig. S2.** Null distribution of  $F_{ST}$  values obtained under a model of population isolation after divergence at c. 660 000 years ago. The observed  $F_{ST}$  (0.12) was far below the range of simulated  $F_{ST}$ , allowing the rejection of the sole effect of incomplete lineage sorting under recent isolation.

**Table S1. Compilation of haplotype diversities presented by Neotropical fishes for the mtDNA control region**

Compilation of haplotype diversities presented by Neotropical fishes for the mtDNA control region

Species	Haplotype diversity	Reference
<i>Odontesthes perugiae</i>	$0.88 \pm 0.1$	Beheregaray <i>et al.</i> (2002)
<i>Acanthurus bahianus</i>	$0.90 \pm 0.03$	Rocha <i>et al.</i> (2002)
<i>Acanthurus chirurgus</i>	$0.98 \pm 0.01$	Rocha <i>et al.</i> (2002)
<i>Acanthurus coeruleus</i>	$0.73 \pm 0.07$	Rocha <i>et al.</i> (2002)
<i>Ocyurus chrysurus</i>	0.96	Vasconcellos <i>et al.</i> (2008)
<i>Cynoscion acoupa</i>	$0.89 \pm 0.02$	Rodrigues <i>et al.</i> (2008)
<i>Macrodon atricauda</i>	$0.80 \pm 0.03$	Rodrigues <i>et al.</i> (2014)

## References

- Beheregaray, L. B., Sunnucks, P., and Briscoe, D. (2002). A rapid fish radiation associated with the last sealevel changes in southern Brazil: the silverside *Odontesthes perugiae* complex. *Proceedings of the Royal Society of London – B/Biological Sciences* **269**, 65–73. doi:10.1098/rspb.2001.1838
- Rocha, L. A., Bass, A. L., Robertson, D. R., and Bowen, B. W. (2002). Adult habitat preferences, larval dispersal, and the comparative phylogeography of three Atlantic surgeonfishes (Teleostei: Acanthuridae). *Molecular Ecology* **11**, 243–251. doi:10.1046/j.0962-1083.2001.01431.x
- Rodrigues, R., Schneider, H., Santos, S., Vallinoto, M., Sain-Paul, U., and Sampaio, I. (2008). Low levels of genetic diversity depicted from mitochondrial DNA sequences in a heavily exploited marine fish (*Cynoscion acoupa*, Sciaenidae) from the Northern coast of Brazil. *Genetics and Molecular Biology* **31**, 487–492. doi:10.1590/S1415-47572008000300015

- Rodrigues, R., Santos, S., Haimovici, M., Saint-Paul, U., Sampaio, I., and Schneider, H. (2014). Mitochondrial DNA reveals population structuring in *Macrodon atricauda* (Perciformes: Sciaenidae): a study covering the whole geographic distribution of the species in the southwestern Atlantic. *Mitochondrial DNA* **25**, 150–156. doi:10.3109/19401736.2013.792053
- Vasconcellos, A. V., Vianna, P., Paiva, P. C., Schama, R., and Solé-Cava, A. (2008). Genetic and morphometric differences between yellowtail snapper (*Ocyurus chrysurus*, Lutjanidae) populations of the tropical West Atlantic. *Genetics and Molecular Biology* **31**, 308–316. doi:10.1590/S1415-47572008000200026