

# Morphological diversification of the endemic Antarctic fishes Trematominae (Notothenioidei, Teleostei)

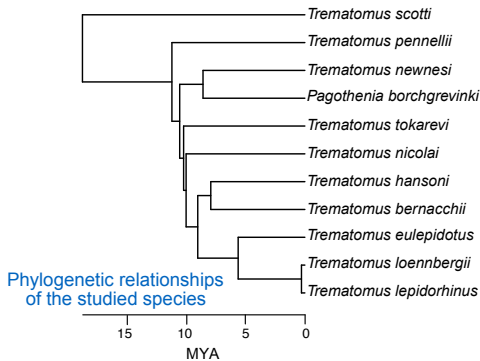
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## Introduction & Methods

Antarctic notothenioids represent a text book example of adaptive radiation in the marine realm. Time-calibrated phylogenies suggest that the diversification of most speciose notothenioid lineages, such as the Trematominae, occurred between 20 and 15 Ma. In order to validate a scenario of adaptive radiation in Trematominae where speciation events are associated with ecomorphological variation, we aimed to describe their size and shape diversification.

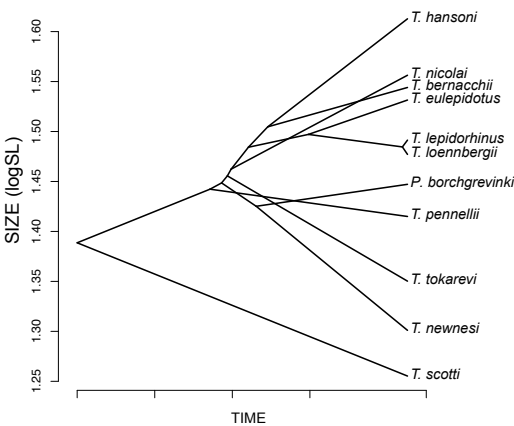


- Images in lateral view: **193** museum specimens from **11 species** (i.e. **73 % of the extant diversity**)
- Phylogenetic hypotheses from Laurtédou *et al.* (2012) MPE 65, 87-101.
- Shape quantification using Landmark-based Geometric Morphometrics - 16 Landmarks.
- Maximum size collected on FishBase.org



## Results

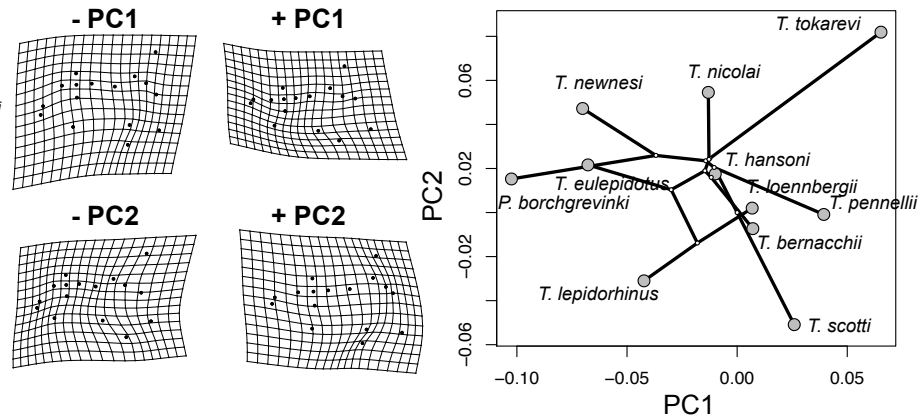
### SIZE DIVERSIFICATION



Evolution of body size across the phylogeny of Trematominae. SL refers to standard length.

### SHAPE DIVERSIFICATION

Phylomorphospace of Trematominae. Plot of the first two PCs. TPS-grids illustrate shape changes associated with the first two principal components.



- Speciation events are generally associated with size divergence between closely related species.
- No phylogenetic signal was detected for the shape data ( $K_{mult} = 0.29$ ;  $P = 0.14$ ), indicating that closely related species are more different than expected under a Brownian motion model.
- Head shape divergences illustrated on the phylomorphospace (e.g. variation of the length of the mandible (PC1), eye and cheek size (PC2)) suggests that closely related species differ in their feeding habits.



CONCLUSION:

Our results provide supports on an adaptive, ecological radiation of the icefishes Trematominae