



# Article

urn:lsid:zoobank.org:pub:1B1F1BBC-BAB5-48F8-93CE-F10D831A71FC

## On the diversity of the genus *Pisione* (Polychaeta, Pisionidae) along the Portuguese continental shelf, with a key to European species

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### Abstract

This work details the diversity and distribution of the genus *Pisione* Grube, 1857, Family Pisionidae Southern, 1914, on the Portuguese continental shelf. The study reports the first records for this region of the species *P. guanche*, *P. inkoi* and *P. parapari*, where previously *P. remota* was the only species reported. A detailed morphological study of the four species is presented, with a discussion of habitat preferences and biogeographic issues related to their distributional ranges. A total of 692 specimens were recorded at 48 sites. The four species coexist, with *P. remota* and *P. parapari* being the most abundant. A multivariate analysis based on morphological descriptors of 75 specimens showed a good separation of the four species. *Pisione guanche* and *P. inkoi* are characterized by a protruding notoacicula, longer in *P. inkoi*. These two species can be differentiated by the proportional length of the dorsal cirrus on parapodia 2 compared to parapodia 3, much longer in *P. guanche*, and by the number of distal teeth in the supra-acicular simple chaetae, bidentate in *P. guanche* and unidentate in *P. inkoi*. Of the four species, *P. remota* is the only one with an infra-acicular simple chaeta. The smallest intra-specific variability was found in *P. parapari* and the highest in *P. guanche*. The variability within species was much lower than the inter-specific variability which validated the four species of *Pisione* occurring in the Iberian Peninsula. This work set the meridional limit of *P. inkoi* and *P. parapari*, respectively in the western and the southern sector of the Portuguese continental shelf and the northern limit of *P. guanche* off the south margin of the Nazaré Canyon. *Pisione guanche* is here recorded for the first time in the Lusitanian biogeographic province, increasing to five the number of species known for European continental waters. A taxonomic key for the European *Pisione* species is given.

**Key words:** Iberian Peninsula, distributional range, morphological study, taxonomic key

### Introduction

The genus *Pisione* Grube, 1857 comprises forty-four species of interstitial polychaetes (Martínez *et al.* 2008; Moreira *et al.* 2010), that can be found world-wide in marine intertidal and shallow subtidal continental shelves; one species lives in freshwater streams of an island on the Pacific of Panamá (San Martín, *et al.* 1998). *Pisione remota* (Southern, 1914) is regarded as being cosmopolitan, and *Pisione puzae* Siewing, 1953 recorded from the Mediterranean, were previously the only species recorded from European waters. Recently, *Pisione guanche* San, Martín, López & Núñez, 1999 was described from the Macaronesian biogeographic province (Canary Islands), *Pisione parapari* Moreira, Quintas & Troncoso, 2000 from the Ensenada de Baiona (Galicia, northwestern Spain) and *Pisione inkoi* Martínez, Aguirrezabalaga & Adarraga, 2008 from the Bay of Biscay (northern Spain). Currently, only *P. remota* was recorded from the Portuguese continental shelf, namely in estuaries (Rodrigues & Quintino 1993, 2001; Chainho *et al.* 2008; Rodrigues *et al.* 2011), coastal lagoons (Quintino *et al.* 1987; Carvalho *et al.* 2011) and the near shore shelf (Quintino *et al.* 2001; Freitas *et al.* 2003, 2011; Silva *et al.* 2008).

Wiklund *et al.* (2005), based on a molecular and morphological analysis, proposed the inclusion of the genus *Pisione* in the family Sigalionidae; however, the family Pisionidae is accepted as a valid family in the majority of publications, so we prefer a more conservative position for the moment and consider it as a separate family of polychaetes.