

**Scientific Name:** *Psammonobiotus linearis* Golemansky, 1970

**Common Name:** testate amoeba

**Taxonomy:** available through ITIS

**Identification:** Amoebas in the family Psammonobiotidae have bilaterally symmetric tests (shells) of organic material covered in haphazardly arranged quartz shards (Golemansky 1974; Nicholls and MacIsaac 2004; Nicholls 2005). The quartz particles in this species are large and polygonal and the test is transparent and colorless. Pseudopods protrude through an opening at one end of the test and are surrounded by a flared, flat collar. *P. linearis* usually has a conspicuous horn-like extension of its test at the aboral end. The length to width ratio of this species is 2–2.5 (Golemansky 1970; Nicholls and MacIsaac 2004).

**Size:** This species averages 28 µm in length, 13 µm width and 13 µm height in the Great Lakes. Specimens from other parts of the world are smaller and are 16–24 µm in length (Nicholls and MacIsaac 2004).

**Native Range:** *P. linearis* is probably native to the Ponto-Caspian region of Eurasia (Black Sea, Caspian Sea, and Aral Sea basins). Since it was first described from the Black Sea, it has been recorded from the Baltic Sea and the Bay of Biscay prior to being found in the Great Lakes (Nicholls and MacIsaac 2004).

**Nonindigenous Occurrences:** *P. linearis* was first recorded in 2002 from eastern Lake Ontario and from Rondeau Bay, Lake Erie (Nicholls and MacIsaac 2004).

**Means of Introduction:** The most probable vector of introduction to the Great Lakes is ship ballast (Nicholls and MacIsaac 2004).

**Status:** Established where found. It should be noted that Lake Michigan has not yet been surveyed for this organism (Nicholls and MacIsaac 2004).

**Ecology:** Psammonobionts generally occur where interstitial water movement and oxygen supply are adequate. They attach to sand grains by way of the flat collar that is part of the test. The pseudopods protrude out the oral opening of the test for locomotion and feeding. Testate amoebas feed on bacteria and particulate organic matter. This species has been recorded in salinities of up to 31‰ in various water bodies (Nicholls and MacIsaac 2004) and at depths of 60 cm in beach sands (Golemansky 1970).

### **Impact of Introduction**

**A) Realized:** Unknown.

**B) Potential:** Unknown.

**Remarks:** Individuals found in the Great Lakes display characteristics that differ from those originally described for *P. linearis*, including greater length and differently shaped test collar (Nicholls and MacIsaac 2004). Given the lack of research effort devoted to testate amoebae to date, this species may have been present in the Great Lakes for many decades prior to its discovery.

**Voucher Specimens:**

**References:**

Golemansky, V. 1970. New thecamoebans (Rhizopoda, Testacea) from the subterranean littoral waters of the Black Sea. *Acta Protozoologica* 8(1-7):41-46.

Golemansky, V. 1974. Psammonobiotidae, a new family of thecamoebans (Rhizopoda, Testacea) from supralittoral sea sandstones. *Acta Protozoologica* 13(11):137-142.

Nicholls, K. H. and H. J. MacIsaac. 2004. Euryhaline, sand-dwelling, testate rhizopods in the Great Lakes. *Journal of Great Lakes Research* 30(1):123-132.

**Other Resources:**

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**Group:** Invertebrate – does not fit categories available

**Lake(s):** Lake Ontario, Lake Erie

**Genus:** *Psammonobiotus*

**Species:** *linearis*

**Common Name:** (testate) amoeba

**Status:** Established

**Freshwater/Marine:** All

**Pathway:** Shipping (most likely)

**Exotic/Transplant:** Exotic