

**Scientific Name:** *Sphaerium corneum* Linnaeus, 1758

**Common Name:** European fingernail clam

**Taxonomy:** Available through ITIS

**Identification:** This fingernail clam has an oval, thin shelled, lustrous brown to gray, and somewhat inflated shell with a height to length ratio of 0.80–0.88. Juveniles' shells are more yellow. The dorsal shell margin is curved and there are low central beaks with straight edges on either side. The shell is covered in evenly spaced striae that become finer and fade out toward the beaks. The narrow 4<sup>th</sup> and 2<sup>nd</sup> cardinal teeth are very close to parallel and the former overlaps the latter. The narrow and curved 3<sup>rd</sup> cardinal is parallel to the hinge plate and expanded and often bifurcate posteriorly (Herrington 1962; Mackie et al. 1980; Clarke 1981; Peckarsky et al. 1993; Mackie 2000).

**Size:** *S. corneum* can grow to around 9–13.5 mm in length (Herrington 1962; Clarke 1981; Letarte and Vaillancourt 1986; Mackie 2000).

**Native Range:** *S. corneum* is native to Eurasia (Clarke 1981; Herrington 1962).

**Nonindigenous Occurrences:** *S. corneum* was first recorded in the Great Lakes basin in Lake Ontario in 1924. It has also been recorded from Lake Erie, Lake Michigan, Lake Superior, Rice Lake (which is part of the Trent-Severn Canal system connecting Lake Huron and Lake Ontario), and Lake Huron, although it is uncommon in the latter. It could have been present in the Great Lakes as early as the 1900s (Herrington 1962; Mackie et al. 1980; Mills et al. 1993; Mackie 2000; Grigorovich et al. 2003).

**Means of Introduction:** *S. corneum* was likely introduced via shipping, probably in solid ballast that was in use at the turn of the century (Mills et al. 1993; Grigorovich et al. 2000; Grigorovich et al. 2003).

**Status:** Established where recorded, but most common in Lake Erie and Lake Ontario, and uncommon in Lake Huron, where it is uncertain if populations are permanently established.

**Ecology:** *S. corneum* occurs in lotic and lentic water bodies. It often prefers somewhat eutrophied, more lentic habitats, but it cannot tolerate extremely high organic pollution. Nor does it tolerate desiccation well. *S. corneum* has a high capacity for anaerobiosis and is able to survive anoxic conditions for around 400 days at 0°C and for 9 days at 20°C. *S. corneum* prefers hard waters with high magnesium, calcium, and bicarbonate concentrations. It is found on fine sand, mud, silt, organic matter, and sometimes on gravel. In Lake Michigan it is found down to 10 m. In some German ponds, densities of 51,000–76,500 clams per m<sup>2</sup> can occur. In Lake Superior, densities can reach 61 clams per m<sup>2</sup> and in the St. Lawrence River they can reach 500–8000 clams per m<sup>2</sup> (Boycott 1936; Herrington 1962; Hinz 1977; Dussart 1979; Mackie et al. 1980; Clarke 1981;

Krieger 1984; Letarte and Vaillancourt 1986; Holopainen 1987; Mackie 2000; Grigorovich et al. 2003; Watson and Ormerod 2005).

*S. corneum* is hermaphroditic and ovoviviparous. Sexually mature adults can carry 1–20 embryos, occasionally more. Individuals in the St. Lawrence River live to 1 or 1 and a half, while in Europe they can sometimes live to 2 or 3. Parturition in the St. Lawrence River usually occurs in the spring (Dussart 1979; Clarke 1981; Letarte and Vaillancourt 1986; Letarte and Vaillancourt 1988; Mackie 2000).

*S. corneum* is mainly a filter feeder but can also deposit feed. It prefers diatoms but also ingests other types of phytoplankton. *S. corneum* is capable of climbing up aquatic macrophytes, which aids it to filter feed (Bishop and DeGaris 1976; Mackie 2000).

In Europe, *S. corneum* is host to *Phyllodistomum* spp., which are digenean parasites. The common toad *Bufo bufo* can aid *S. corneum* in dispersing in Europe, as the clam can attach to the amphibian's toe and thus be transferred from one place to another (Kwet 1995; Petkeviciutie et al. 2004).

### **Impact of Introduction**

**A) Realized:** In Lake Ontario and Cayuga Lake (part of the Lake Ontario drainage in New York state), *S. corneum* has been recorded as a host to the oligochaete *Chaetogaster limnaei limnaei*. This oligochaete is probably quite widespread in North America, where it is typically a commensal of native snails, some other native *Sphaerium* spp., and at least one native limpet species (Barbour 1977).

**B) Potential:** *S. corneum* hosts such digenean species as *Crepidostomum transmarinum*, *Bunodera lucipercae*, and *Phyllodistomum simile* in North America. These species have been recorded from the Ottawa River, which flows into the St. Lawrence River in Canada (Mackie 1976; Mackie 2000).

### **Remarks:**

### **Voucher Specimens:**

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**Other Resources:**

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**Group:** Mollusks – Bivalves (mussels, clams, oysters)

**Lake(s):** Lake Ontario Drainage, Lake Erie, Lake Michigan, Lake Superior, Lake Huron

**Genus:** *Sphaerium*

**Species:** *corneum*

**Common Name:** European fingernail clam

**Status:** Established everywhere but Reported from Lake Huron

**Freshwater/Marine:** Freshwater

**Pathway:** Shipping

**Exotic/Transplant:** Exotic