Scientific Name: *Eubosmina maritima* Müller, 1867

Common Name: waterflea

Taxonomy: Available through ITIS

Identification: This waterflea has a relatively long carapace. Its antennules run half the length of the body and lay towards the posterior end along the ventral side. The mucro is around 20–55 μm in length and juts out diagonally from the body. The postabdominal claw exhibits proximal pecten with a total of 13 spines: 6 very short, 6 larger and similar in size, and 1 separating the two groups. The rostrum recurves ventrally to the compound eye and there is a lateral circular head pore located next to the mandibular articulation (De Melo and Hebert 1994).

Size: Parthenogenetic female *E. maritima* range in length from 595–720 μm in the Great Lakes (De Melo and Hebert 1994).

Native Range: *E. maritima* is native to the Baltic and Barents Seas as well as inland lakes surrounding these drainages (De Melo and Hebert 1994).

Nonindigenous Occurrences: The first occurrence of *E. maritima* in the Great Lakes dates from 1988 in Lake Michigan. It has also been recorded from Lake Erie in 1991 and 1992 and Lake Huron in 1992 (De Melo and Hebert 1994).

Means of Introduction: *E. maritima* was very likely introduced in ballast water by ships entering the Great Lakes from Europe (De Melo and Hebert 1994; Duggan et al. 2005; Gray et al. 2005).

Status: Established where recorded.

Ecology: *E. maritima* has adapted to freshwater environments in the Great Lakes, where it is most abundant and sometimes dominant in the winter zooplankton community. In its native range in Europe it is a brackish water cladoceran, producing its resting eggs in estuarine and marine environments. *E. maritima* feeds on phytoplankton. It is capable of surviving massive cyanobacteria blooms in the Baltic Sea, even though this type of phytoplankton is not an ideal food source (Berzins 1949; Madhupratap et al. 1996; Witt et al. 1996; Hebert and Cristescu 2002; Schmidt et al. 2002; Duggan et al. 2005).

E. maritima is capable of producing resting eggs (ephippia) through sexual reproduction. These ephippia can stay dormant in the sediments until favorable environmental conditions occur. Parthenogenetic females give rise to juveniles asexually. In the Great Lakes, only asexual females have been recorded. In the Baltic Sea, *E. maritima* utilizes sexual reproduction more frequently in areas where selection pressures are higher (Kankaala 1983; De Melo and Hebert 1994; Viitasalo and Viitasalo 2004; Wonham et al. 2005).

Impact of Introduction

A) Realized: Unknown.

B) Potential: Unknown.

Remarks: The current taxonomic status of this species is somewhat uncertain, although recent genetic analyses indicate that *E. maritima* collected from the Great Lakes is very likely of Palearctic origin (Haney and Taylor 2003).

E. maritima is synonymous with *Bosmina maritima*.

Voucher Specimens:

References:

Berzins, B. 1949. On the biology of the Latvian perch (Perca fluviatilis L.). Hydrobiologia 2(1):64-71.

De Melo, R. and P. D. N. Hebert. 1994. A taxonomic reevaluation of North American Bosminidae. Canadian Journal of Zoology 72:1808-1825.

Duggan, I. C., C. D. A. van Overdijk, S. A. Bailey, P. T. Jenkins, H. Limen, and H. J. MacIsaac. 2005. Invertebrates associated with residual ballast water and sediments of cargo-carrying ships entering the Great Lakes. Canadian Journal of Fisheries and Aquatic Sciences 62:2463-2474.

Gray, D. K., S. A. Bailey, I. C. Duggan, and H. J. MacIsaac. 2005. Viability of invertebrate diapausing eggs exposed to saltwater: implications for Great Lakes' ship ballast management. Biological Invasions 7:531-539.

Haney, R. A. and D. J. Taylor. 2003. Testing paleolimnological predictions with molecular data: the origins of Holarctic *Eubosmina*. Journal of Evolutionary Biology 16:871-882.

Hebert, P. D. N. and M. E. A. Cristescu. 2002. Genetic perspectives on invasions: the case of the Cladocera. Canadian Journal of Fisheries and Aquatic Sciences 59:1229-1234.

Kankaala, P. 1983. Resting eggs, seasonal dynamics, and production of *Bosmina longispina maritima* (P. E. Muller) (Cladocera) in the northern Baltic proper. Journal of Plankton Research 5(1):53-69.

Madhupratap, M., S. Nehring, and J. Lenz. 1996. Resting eggs of zooplankton (Copepoda and Cladocera) from the Kiel Bay and adjacent waters (southwestern Baltic). Marine Biology 125(1):77-87.

Schmidt, K., M. Koski, J. Engstrom-ost, and A. Atkinson. 2002. Development of Baltic Sea zooplankton in the presence of a toxic cyanobacterium: a mesocosm approach. Journal of Plankton Research 24(10):979-992.

Viitasalo, S. and M. Viitasalo. 2004. Predation by the mysid shrimps *Mysis mixta* and *M. relicta* on benthic eggs of *Bosmina longispina maritima* (Cladocera) in the northern Baltic Sea. Marine Ecology Progress Series 281:155-163.

Witt, J. D. S., P. D. N. Hebert, and W. B. Morton. 1996. *Echinogammarus ischnus*: another crustacean invader in the Laurentian Great Lakes basin. Canadian Journal of Fisheries and Aquatic Sciences 54:264-268.

Wonham, M. J., S. A. Bailey, H. J. MacIsaac, and M. A. Lewis. 2005. Modelling the invasion risk of diapausing organisms transported in ballast sediments. Canadian Journal of Fisheries and Aquatic Sciences 62:2386-2398.

Other Resources:

Author: Rebekah M. Kipp

Revision Date: Feb. 6, 2007

Citation for this Information: Rebekah M. Kipp. 2006. GLANSIS.

Group: Crustaceans - All

Lake(s): Lake Huron, Lake Michigan, Lake Erie

Genus: *Eubosmina* (synonymous with *Bosmina*)

Species: *maritima*

Common Name: waterflea

Status: Established

Freshwater/Marine: All

Pathway: Shipping

Exotic/Transplant: Exotic