Scientific Name: *Eubosmina coregoni* Baird, 1857

Common Name: waterflea

Taxonomy: Available through ITIS

Identification: Females of this waterflea exhibit larger and more variable traits with respect to the carapace and antennules than do males. The females' large antennules are located anteriorly and ventrally. The females' postabdominal claw is emarginate near the tip and has proximal pecten only, with 3–5 short spines. That of the male becomes very narrow distally. The anterior sensory bristle of this species is near the end of the rostrum and close to the attachment of the antennules. There is no mucro or the mucro is extremely small. The lateral headpore is close to the attachment of the mandibles but relatively far from the headshield (Deevey and Deevey 1971; Pennak 1989; Dodson and Frey 1991; Lord et al. 2006).

Size: *E. coregoni* can range from 0.2–0.8 mm in length (Pennak 1989; Barbiero and Tuchman 2004).

Native Range: *E. coregoni* is native to Europe (Haney and Taylor 2003).

Nonindigenous Occurrences: *E. coregoni* was first recorded from the Great Lakes in 1966 in Lake Michigan. By the 1970s–1980s it was considered to have spread to all the Great Lakes and by the 1990s it was present in many inland lakes within 100 km of the Great Lakes (Mills et al. 1993; Demelo and Hebert 1994).

It should be noted that in a relatively recent survey, this species was not found in Lake Superior (Barbiero et al. 2001).

Means of Introduction: *E. coregoni* was very likely introduced via ballast water to the Great Lakes and transferred within the network of ports by further ballast water movement and exchange. It probably expanded into inland lakes via long-distance dispersal and migration (Mills et al. 1993; Demelo and Hebert 1994).

Status: Established throughout all the Great Lakes drainages; however, status in Lake Superior is uncertain.

Ecology: The distribution of *E. coregoni* varies seasonally in the Great Lakes. In Lake Michigan, it occurs in the nearshore region at 5-10 m from the surface in fall and winter, but more frequently at 20–30 m depth in the height of the summer. In the same lake, it is relatively uniformly distributed horizontally in fall and winter, but in summer it occurs significantly more frequently in water 0–18 km from shore than in open water. When it occurs predominantly at the surface in Lake Michigan, *E. coregoni* is an important food item for such fish species as bloater (*Coregonus hoyi*) (Gannon 1975, 1976; Evans et al. 1980; Crowder and Crawford 1984).

In eutrophic lakes in Europe, *E. coregoni* is often dominant in spring and fall. However, in the Great Lakes it is almost completely absent in spring and is more abundant in summer, potentially reaching densities of around 69,000 per m^2 in western Lake Erie and around 44,500 per m^2 in Lake Ontario. It has also been recorded at high densities in the fall in Lake Ontario and Lake Michigan (Roth and Stewart 1973; Geller and Müller 1981; Johansson and O'Gorman 1991; Barbiero et al. 2001).

E. coregoni filter feeds and feeds raptorially, selecting specific phytoplankton in the water column. It specifically selects particles of 0.5–5 µm in size and thus is much more tolerant of eutrophic conditions and the presence of cyanobacteria such as *Cylindrospermopsis raciborskii* than many larger *Daphnia* spp. Larger cladocerans experience difficulty feeding in the presence of cyanobacteria because they do not feed selectively and longer algae filaments clog their filtering apparatuses (Henning et al. 1991; Mayer et al. 1997; Cyr 1998; Donabaum et al. 1999).

Reproduction in *E. coregoni* can occur either between sexual females and males, or parthenogenetically in asexual females. The mean number of eggs found per individual from 1981–1986 in Lake Ontario ranged from around 0.4–1.2. *E. coregoni* can produce resting eggs that can stay dormant in the sediments for long periods of time. These eggs will hatch under the influence of specific environmental conditions. For example, *E. coregoni* was once recorded to emerge from resting eggs after a drought and the re-acidification of a lake in Sudbury, Canada (Johansson and O'Gorman 1991; Arnott and Yan 2002; Lord et al. 2006).

Changes in this species' morphology with season, or cyclomorphosis, may be related to predation and/or temperature. Further studies need to be carried out to test these hypotheses, especially in North America. Most studies have been carried out in Europe, but different forms of this species occur in Europe in comparison with North America (Kappes and Sinsch 2002).

This is a freshwater species. It can experience mortality at salinities of 3‰ (Nauwerck 1991).

Impact of Introduction

A) Realized: It is possible that the presence of *E. coregoni* and that of zebra mussel veligers (*Dreissena polymorpha*) in the zooplankton in Lake Ontario could have aided the establishment of the exotic blueback herring (*Alosa aestivalis*). *E. coregoni* also serves as a food item to introduced alewife (*A. pseudoharengus*) and the introduced spiny waterflea (*Bythotrephes longimanus*) in the Great Lakes (Mills et al. 1995; Molloy et al. 1997; Grigorovich et al. 1998).

B) Potential: Unknwon.

Remarks: After the introduction of *B. longimanus* to the Great Lakes, populations of *E. coregoni* greatly decreased in the mid to late 1980s and have remained at lower densities since this time. Population decreases in *E. coregoni* that occurred in the 1980s in Severn Sound, Lake Huron could also have been related to changes in fish community structure (Gemza 1995; Barbiero and Tuchman 2004).

Voucher Specimens:

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Other Resources:

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Group: Crustaceans - All

Lake(s): All Great Lakes Drainages

Genus: *Eubosmina*

Species: *coregoni*

Common Name: waterflea

Status: Established everywhere, but should be considered Recorded from Lake Superior

Freshwater/Marine: Freshwater

Pathway: Shipping

Exotic/Transplant: Exotic