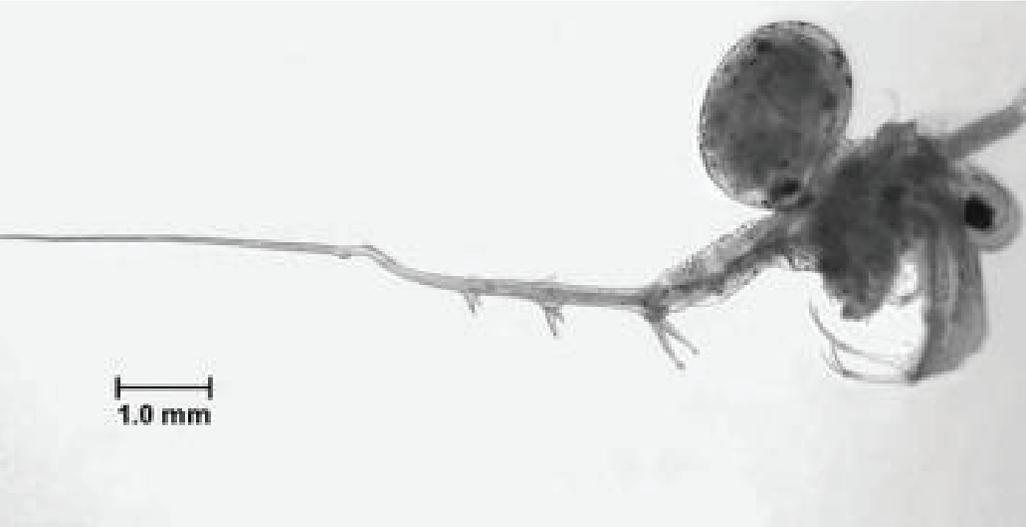




Spiny Waterflea

Bythotrephes cederstroemii Shodler, 1877. *syn. B. longimanus* Leydig, 1860.
(Aka: spiny tailed water flea, Eurasian spiny waterflea)



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Overview:

The spiny water flea is not an insect, but rather a tiny, freshwater crustacean native to northern Europe and Asia.¹ Spiny water fleas were introduced to the Great Lakes via ballast water and have spread from there.¹ They feed on other zooplankton, including the native *Daphnia* species.² Their zooplankton feeding is in direct competition with juvenile and small fish, however water fleas are consumed by some fish species.¹

The spiny water flea reproduces both sexually and by parthenogenesis (females can produce female clones).³ Asexual reproduction facilitates explosive population growth and sexual reproduction facilitates genetic diversity. Sexually reproduced eggs can go into a diapause until water temperatures are optimum for hatching. Eggs in diapause and the eggs of pregnant females consumed by fish survive passage through the digestive tract.¹ This facilitates distribution.

Habitat:

The spiny water flea prefers "large, deep, clear lakes with relatively low summer bottom temperatures." It can occupy estuarine, lake, water course and wetland habitats. It can tolerate a wide range of temperatures but it generally found between 5 °C and 30 °C.¹

Identification:

The spiny water flea's head is clearly defined from the abdomen and consists primarily of a large, black eye.³ The abdomen is well developed,¹ has four pairs of legs³ with a long, thin caudal appendage or tail which is barbed (usually 3-4 barbs).¹ Adult bodies from the Great Lakes measure 1.5 to 5 mm in length and the tail can be up to 7 mm long.¹ Adult females have a brood pouch on their backs.²

Ecology:

Spiny water fleas feed on other zooplankton. Eggs in diapause begin hatching when water temperatures reach 4 °C.² Juveniles increase size through a series of molts.² Hatching to sexual maturity takes about 14 days - maximum development occurs when temperatures are between 20 - 25 °C.¹ Females repro-

duce via parthenogenesis during warm temperatures. When water temperatures begin to cool sexual reproduction occurs. Eggs are released and enter diapause for the winter.³

Economic Impacts:

In high numbers, spiny water fleas can catch on fishing line, fish nets, and trawls.

Environmental Impacts:

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Sociological Impacts:

Loss of native plankton species and competition for the food resources of larval/small fish results in the intrinsic loss of natural capital and enjoyment of natural areas.

Prevention:

Spiny water fleas are most likely to be spread by humans via fishing and boating gear. Public awareness and proper sanitation proce-

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Spiny Waterflea (Continued)

dures can prevent spread.

Control:

Control of spiny water flea is only by prevention of spread to uninfested water bodies. Fishing and boating gear should be cleaned with high pressure water at least 40 °C. Boat and trailers can be towed through carwashes. Boats should be allowed to dry for more than 5 days due to the possibility of transporting eggs in diapause.¹

REFERENCES

- ¹ Bythotrephes longimanus Invasive Species Specialist Group. Global Invasive Species Database. www.issg.org/database. Accessed: August 2015.
- ² Bythotrephes longimanus - Spiny Water Flea/Spiny Tailed Water Flea. <http://el.erd.c.usace.army.mil>. Accessed: August 2015.
- ³ Caceres, C. et al. Date unknown. Life history and effects on the Great Lakes of the spiny tailed Bythotrephes. Minnesota Sea Grant Outreach. www.seagrant.umn.edu/exotics/spiny.html. Accessed: August 2015.



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