First Evidence of The Cladoceran
Bythotrephes Cederstroemi
Schoedler in Lake Superior

Ken I. Cullis and Gordon E. Johnson
Lake Superior Fisheries Unit Ontario Ministry of Natural Resources
P.O. Box 5000 Thunder Bay, Ontario P7C 5G6

Abstract. Specimens of the cladoceran, Bythotrephes cederstroemi Schoedler, were identified from samples collected from Michipicoten Bay, Terrace Bay, and Cloud Bay, Lake Superior. This species, not previously reported in Lake Superior, was identified in samples from late August and early September 1987.

ADDITIONAL INDEX WORDS: Zooplankton, taxonomy, species composition.

The first North American occurrence of Bythotrephes cederstroemi Schoedler was recorded in Lake Huron in late 1984 (Bur et al. 1986). Subsequent collections of this predatory cladoceran were made in Lake Ontario from September 1985 (Lange and Cap 1986) and in Lake Erie from October 1985 (Bur et al. 1986). B. cederstroemi was collected at three Lake Superior locations from 22 August to 9 September 1987. Zooplankton surveys, including the most recent lakewide survey conducted during May and June, 1987 (G. Sprules, University of Toronto, Toronto, Ontario, personal communication), have not detected this species in Lake Superior.

Specimens of B. cederstroemi were recovered on 22 August 1987 from chinook salmon stomachs and angling gear during a study of the sport fishery in Michipicoten Bay in northeastern Lake Superior (latitude 47°56', longitude 84°52'W). Anglers first noted B. cederstroemi concentrations in Michipicoten Bay during the early spring of 1987 when these cladocerans adhered to fishing lines and fouled fishing gear. Despite their abundance, none were caught in Michipicoten Bay during late August and early September with 13 cm diameter, 80 micron conical plankton nets. Nilsson (1979) noted that plankton nets caught very few B. cederstroemi in Lake Vanern, Sweden, even though they were an important food item of planktivorous fish.

B. cederstroemi is widely distributed in northern Lake Superior. Specimens were found in pink salmon stomachs collected in Terrace Bay (latitude 48°47', longitude 87°10'W) in northcentral Lake Superior (9 September 1987) and from angling gear in Cloud Bay (latitude 48°05', longitude 89°26'W) in northwestern Lake Superior (2 September 1987). Although specimens were not noted prior to 1987, the wide distribution indicates this cladoceran was established earlier.

Lake Superior may provide an optimal environment for B. cederstroemi production as this species is most abundant at depths greater than 20 meters (Nilsson 1979) in European oligotrophic lakes. The impact of this species on the Lake Superior ecosystem is difficult to predict. B. cederstroemi, highly vulnerable to pelagic fish due to its large size, dominates the
diets of planktivorous coregonids in Lake Vanern, Sweden (Nilsson 1979). Increased *Bythotrephes* densities may increase the total zooplankton biomass available to Lake Superior's pelagic species; however, larval fishes may be incapable of utilizing this large cladoceran. Size range and species composition of the plankton community, and possibly phytoplankton biomass (Kinsten and Olsen 1981), may be altered if *B. cederstroemi* becomes abundant in Lake Superior.

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**References**


