



The *Chironomus* group (Diptera: Chironomidae) in Lake Winnipeg, Canada

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Abstract

Species of the *Chironomus* group from Lake Winnipeg, Manitoba, Canada are listed and taxonomic and ecological notes given. *Chironomus* (*C.*) *entis* Shobanov and *C.* (*C.*) *bifurcatus* dominates the bottom fauna with minor occurrence of four other larval types. Fourteen species of *Chironomus* Meigen, one *Chaetolabis* Townes, and one *Lobochironomus* Ryser, Wülker *et* Scholl; one species of *Benthalia* Lipina, and one *Einfeldia* Kieffer are present in the light traps. *Chironomus* (*Lobochironomus*) sp. and *Benthalia brunneipennis* (Johannsen) are described on adult male. A key to the Nearctic males of *Einfeldia*, *Benthalia* and *Chironomus* subgen. *Lobochironomus* is presented. The significance of the different *Chironomus* species as indicators of trophic levels is demonstrated by their distribution in Lake Winnipeg. The separation of larval instars is shown approximately to follow Dyar's rule.

Key words: Chironomidae, *Chironomus*, *Benthalia*, *Einfeldia*, key, Lake Winnipeg

Introduction

A limnological baseline survey of Lake Winnipeg were conducted in 1969 by the staff of the Freshwater Institute, Fisheries Research Board of Canada, in order to study the chemical limnology, phytoplankton, primary production, zooplankton and zoobenthos. The lake which is a remnant of Glacial Lake Agassiz has a surface area of 23,750 km², mean depth of 10.6 m, maximum depth of 32 m, Secchi disc visibility of 5–50 cm in the south basin and 1–3 m in the north basin, is essentially isothermal during the open water season and receives high nutrient loading from the rivers which enters it. Brunskill (1973) reported that 5,000 metric tons of phosphorous and 62,000 tons of nitrogen were being added annually to the lake over the period 1968–1970. At least in the south basin, however, primary production appeared to be limited by turbidity rather than nutrient supply. Three basins are delineated by the shape of the lake (Fig. 1). The South Basin is shallower, with a mean depth of 9.7 m, than the larger North Basin (mean depth 13.3 m) and the two basins are separated by a Narrows section (mean depth 7.2 m) which is subject to strong currents associated with seiches.

The results from the benthic studies of the chironomids are presented in Chang *et al.* (1993), while the results from light trap collections, emergence traps and rearings are given in Chang *et al.* (1994). The chironomid indicator communities in different areas of Lake Winnipeg are shown in Sæther (1979 fig. 3).

The *Chironomus* group in the lake consists of 13 species of *Chironomus* Meigen including one *Chaetocladius*; one *Einfeldia* and two new species of *Benthalia*. In addition there are 3 larval and one pupal type. However, only *C. entis* Shobanov and *C. bifurcatus* are common and numerous in the benthic samples (Fig. 1). In the North Basin and in the Narrows *C. entis* has the highest biomass of all chironomids, while *C. bifurcatus* show the highest biomass in the South Basin. *C. entis* is the most numerous species in the Narrows and only *Cryptotendipes casuarius* (Townes) is more numerous in the North Basin (Sæther 2010a). In the South Basin only *Polypedilum* (*Tripodura*) *simulans* (Townes), *Cryptotendipes darbyi* (Sublette), *Procladius* (*Holotanypus*) *culiciformis* (L.), and *P. (H.) sublettei* Roback are more numerous than *C. decorus*. A few larvae belonging to other species of *Chironomus* occur at a few localities. Most noteworthy of these is the *Chironomus fluviatilis* type which occurs only in the northernmost part of the lake.