

## ***Procladius* Skuse from Lake Winnipeg, Manitoba, Canada, with keys to some females and immature stages of the genus (Diptera: Chironomidae)**

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### **Abstract**

*Procladius (Holotanypus) rugulosus* sp. n. from Lake Winnipeg, Manitoba, Canada, is described as male, female and pupa. Six additional species of *Procladius* Skuse are recorded from Lake Winnipeg of which 5 belong to the most common species in the lake. The immature stages of *P. (Psilotanypus) bellus* (Loew), *P. (Holotanypus) culiciformis* (L.), *P. (H.) denticulatus* Sublette, *P. (H.) freemani* Sublette, and *P. (H.) sublettei* Roback are redescribed. Species keys are given to sufficiently known Nearctic females, to pupae of Lake Winnipeg, and to Nearctic larvae of *Procladius*. The distribution of *Procladius* in Lake Winnipeg is mapped and discussed. The separation of larval instars is shown approximately to follow Dyar's rule.

**Key words:** Chironomidae, *Procladius*, new species, keys to immatures, Lake Winnipeg

### **Introduction**

A limnological baseline survey of Lake Winnipeg was 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 km<sup>2</sup>, 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) subject to strong currents associated with seiches.

The results from the benthic studies of the chironomids is 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) (*Chironomus plumosus* f. *semireductus* Lenz has since been shown to be *Chironomus entis* Shobanov).

### **Methods**

During the open water season of 1969 in June to late in October the benthos of Lake Winnipeg was sampled at up to 58 stations (Chang *et al.* 1993). Light trappings were conducted from the ship in 1969 and at the shore in 1971 to augment the benthic fauna collections (Chang *et al.* 1994).

At each station attempts were made to take three, tall six inch 15 x 15 cm Birge-Ekman grabs. Where the substrate was too coarse or too hard the samples were taken by a Ponar grab (sampling area 528 cm<sup>2</sup>). Samples were sieved through a 200µm mesh sieve when possible but when sandy substrates were encountered a 400 µm sieve was used. All samples were preserved in 4–10 % formalin.