

Lunar periodicity of the emergence of *Chaoborus flavicans*

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In summer 1991, observations were carried out of the emergence of *Chaoborus flavicans* MEIGEN (Diptera: Nematocera) from eutrophic Lake Hallwil (Switzerland). Emerging imagines were caught in a 1 m² floating trap (RIEDERER 1981) located at the centre of the lake (depth of the lake at this point: 43 m), collected either once or twice a week, and counted.

Three waves of emergence occurred during the three month observation period. Each wave began shortly after full moon, extended throughout the waning phases of the moon, and ended at the following new moon. During the waxing phases of the moon, no emergence was observed. No correlation between meteorological factors and emergence could be established. Between the middle of June and the beginning of July, only a few *Chaoborus flavicans* imagines emerged. The first real peak in emergence occurred during the first two weeks of July, a second peak at the beginning of August

and a third very small peak at the beginning of September. In July and August, an imbalance in the male to female ratio was observed, with the number of males being higher than the number of females. After a few days the balance was restored.

Before the start of emergence only large larvae were found in the lake. Small ones of the next generation appeared after the first peak of adults in July. At the beginning of August only medium sized larvae were caught. The young of the second emergence phase in August developed fast, and by September conformed in size with the rest of the population (or were consumed). After September growth was slow (Fig. 1).

In summer 1991, observation of the emergence of *C. flavicans* from eutrophic Lake Baldegg (Switzerland) were carried out. The midges were caught by the same method as in Lake Hallwil. Depth of the Lake Baldegg at the observation point: 67 m.

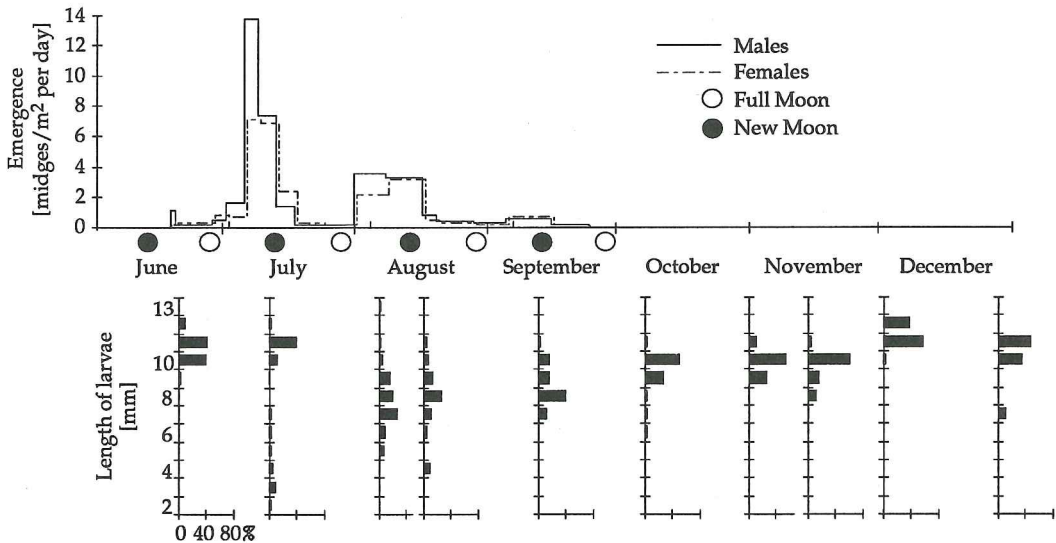


Fig. 1. Emergence of midges and growth of the larvae of *C. flavicans* in Lake Hallwil (Switzerland) 1991.

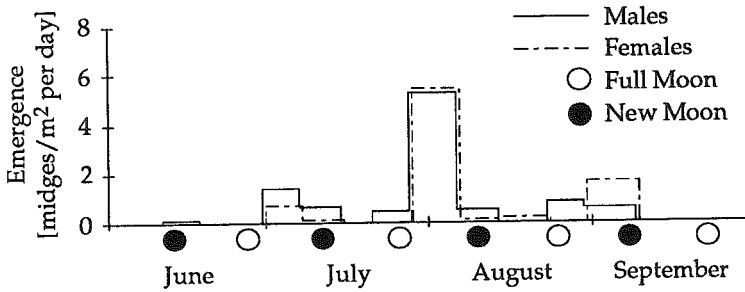


Fig. 2. Emergence of *C. flavicans* in Lake Baldegg (Switzerland) 1991.

The emergence was similar to Lake Hallwil. Three waves occurred during the three month observation period. Each wave began shortly after full moon and ended at the following new moon. The only differences between the lakes was the number of midges caught (Fig. 2). Additionally no imbalance in male to female ratio was observed except at the end of the third wave in September.

Lunar periodicity of emergence in the genus *Chaoborus* has been described for tropical species by HARE & CARTER (1986) in Nigeria and by MACDONALD (1956) in Lake Victoria (Uganda). MEYER (1985) and SMUKALLA & MEYER (1987) postulated for the first time in Europe a possible effect of lunar periodicity in *C. flavicans* in Lake Mindel (Germany).

References

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