

Diel fluctuations of invertebrate drift in a Norwegian stream north of the Arctic Circle

Morten Johansen, J. Malcolm Elliott & Anders Klemetsen

Johansen, M., Elliott, J.M. & Klemetsen, A. 2000. Diel fluctuations of invertebrate drift in a Norwegian stream north of the Arctic Circle. *Norw. J. Entomol.* 47, 101-112.

Sæterelva is a small, third order, stream situated north of the Arctic Circle (latitude 68° N). Drift samples were collected in 1996 during four periods (22-24 May, 23-25 June, 18-20 August and 6-7 October) to determine whether diel fluctuations in drift changed with the changing light regimes of the Arctic summer. Two of the sampling periods (May and June) had continuous daylight, while August and October had dark nights.

The taxonomic composition of the drift in Sæterelva was similar to that of other northern temperate streams, being dominated by larvae of Ephemeroptera, Plecoptera and Chironomidae. Total 24 h drift density (\pm SE) was high, ranging from 242 ± 45 individuals per 100 m³ in May to 772 ± 66 per 100 m³ in October. Terrestrial invertebrates contributed a high proportion to the total drift (7-39 %), probably as a result of the dense riparian vegetation along the stream. Total drift density of aquatic invertebrates was greater at night than during the day in August and October, while there were no differences between day and night in May and June. Most individual taxa of aquatic invertebrates followed this pattern. The major exception was Hydracarina, which consistently drifted with highest density during the day. It is concluded that simple classifications of drift are difficult to apply to Arctic streams with periods of continuous daylight.

Key words: invertebrate drift, aquatic invertebrates, diel fluctuations, streams.

Morten Johansen & Anders Klemetsen, Department of Marine and Freshwater Biology, University of Tromsø, N-9037 Tromsø, Norway.

J. Malcolm Elliott, Freshwater Biological Association, The Ferry House, Far Sawrey, Ambleside, Cumbria LA22 0LP, United Kingdom.