

## 7) TEMPORAL AND SPATIAL DYNAMICS OF CHIRONOMIDAE IN A MOUNTAIN BROOK

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The dynamics of Chironomidae in the experimental area Ritrodat (Seebach, Lunz, Austria) is examined by means of freeze-core sampling with in situ electro-positioning. Interrelations and coexistence of larval species and their instars are considered where significant microhabitat preferences are indicated. Four questions are examined within this paper: (i) under what density-dependent or -independent conditions a population indicates significant spatial transitions of its density maxima. (ii) How does species dispersion pattern of larval instars differ temporally and spatially. (iii) How does the intraspecific timing of instars affect the dynamics of other larval chironomid populations with regard to resource utilization. (iv) How do habitat preferences among different populations inable relatively stable species associations in time.

Conclusions are drawn from the numerically most abundant species: (a) Dispersion patterns on the surface layer of the sediment and within the bedsediments vary among and between populations in time, clearly interconnected with fluctuations of hydrophysical variables. (b) Possible interspecific relationships can be expanded to include, in addition, density-dependent indications of dispersions within different depth layers of the bedsediments. (c) The four instar larvae and the pupal stage of the abundant species partition partly the resource habitat on a seasonal basis. Mostly in autumn a tendency of a transition of high densities within the surface layer into deeper strata of bedsediments is verified. (d) Horizontal dispersion patterns in time increase the general dynamics and are partly associated with changes of the utilization of species-specific microhabitats within the mosaic of resource-patches.

## 8) A FOOD SCHEDULE FOR COTTUS GOBIO L. (PISCES) IN THE UPPER SEEBACH (RITRODAT-LUNZ STUDY AREA, AUSTRIA)

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*Cottus gobio* is quantitatively by far the most important predator in the Seebach, a second order alpine gravel-bed stream. I present the food interrelationships in the gravel biocenosis, centered at the life history of this fish. *Cottus* starts to feed weighing approx. 2,0 mg. After three months, its weight is about forty times greater, and after the winter again four times. At the beginning, the food consists almost entirely of chironomids. Similar in size and subdominant, harpacticoids were nevertheless never found as stomach content - for reasons unknown. From the fish' length of approx. 2,4 cm onwards, plecopteran and ephemeropteran nymphs become quantitatively prevailing as food. Wet food weight conversion into fish biomass averages 18 % but is higher in the young, fast-growing fish. As *Cottus* grows older, it can less and less hide itself in the gravel interstices and is therefore more vulnerable to predation by salmonids. Only few individuals may outlast this period and, now becoming too dangerous for the trouts to be eaten, will grow to 13 - 14 cm in Seebach. Fish and fish eggs never play any role as food worth mentioning.

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