

S
E
F
S
3

University of
Edinburgh, UK

13–18 July 2003

*Third
Symposium for
European
Freshwater
Sciences*

**PROGRAMME
& ABSTRACTS**

157. Effects of simulated nutrient input in a forested oligotrophic stream

Sergi Sabater¹, Vicenç Acuña², Adonis Giorgi³, Elena Guerra², Isabel Muñoz², Anna Romani¹

1. *Institute of Aquatic Ecology, University of Girona, Spain. Email: sergi.sabater@udg.es*
2. *Ecology Department, University of Barcelona*
3. *CONICET, Luján, Argentina*

High nutrient input in an oligotrophic, forested stream was simulated by adding nitrogen (as nitrate and ammonia) and phosphorus (as reactive phosphate) continuously for 45 days. Moreover, this addition drastically decreased the N/P ratio (from the original 321 to 4.5). The effect of the fertilization in the benthic structure and metabolism was determined by comparing an upstream non-fertilized reach with a downstream fertilized reach by means of a BACI design. Nutrient caused the increase in chlorophyll density on rocks and on sand, as well as a remarkable shift in the algal community. However, the changes did not affect the structure of the macroinvertebrate community, except by an increase of snails (*Ancylus*) in the fertilized reach. The heterotrophic activities (extracellular enzyme activities) increased differently depending on the substratum considered (sand, rocks, detritus). Instead, phosphatase activity decreased at the fertilized reach due to the higher availability of inorganic phosphorus. Finally, metabolism (NCP) was not enhanced by the fertilization after the 45 days, but community respiration increased both in leaves and rocks, although not in the sandy substrata.

158. Assessment of Drought in a Long Time Period, Using Standardized Precipitation Index (SPI). A Case Study of Mashhad Area

S.H. Sanaei-Nejad, (PhD, MSc)

*Ferdowsi University of Mashhad, P.O.Box: 91775-1163
E-Mail: sanaei_h@yahoo.co.uk*

Drought is a normal part of the climate in all regions with high or low precipitation. Drought occurs when soil moisture from rainfall is less than normal for a specified period of time. Analyzing of the statistic period of 32 years (1968 - 1999) in Mashhad synoptic weather station shows drought is a normal event in this climate.

The date analysis for a long period of time shows one severe or long duration drought in 10 years. The analysis also makes this fact clear, while drought duration and frequency have been increased; its severity has been decreased in recent years. Based on this study, the most severe drought in the statistic period occurred in 1977 and 1992 in the wettest year. The results also show that if drought with short time duration merge together, they can cause a long time duration drought with lower strength.