Effects of Phosphorus-Deficient Diets on the P-Balance Of Laboratory and Field Populations of Daphnia

Bryn J. Pape

William R. DeMott Ph.D.

Follow this and additional works at: http://opus.ipfw.edu/stu_symp2001

Recommended Citation

http://opus.ipfw.edu/stu_symp2001/14
EFFECTS OF PHOSPHORUS-DEFICIENT DIETS ON THE P-BALANCE OF LABORATORY AND FIELD POPULATIONS OF DAPHNIA
Bryn J. Pape, W. DeMott
Sponsor: William DeMott
Department of Biology
Indiana University-Purdue University Fort Wayne

We studied the growth and P-balance of ten species of Daphnia cultured in the laboratory and made comparisons of P balance with field populations. In the lab experiments, animals were cultured for 4 days on P-rich (molar C:P ratio 70) or P-deficient (C:P ratio 1,000) diets of green alga Ankistrodesmus falcatus (1mg C/L). P-rich diets resulted in P-contents of 1.3 to 1.6% body mass, whereas P-deficient diets caused declines to 0.9 to 1.2% mass. Although P-deficient diets caused declines in the P balance and growth of each species, we found interspecific variation in P balance with the P-rich diet and in response to the P-deficient diets. We collected data on the seston C:P ratio for six Michigan lakes and the P-balance for Daphnia species from those lakes. In contrast to previous studies, our results show that the P-content of Daphnia from lakes declines as the C:P ratio of food resources increases.