



A comparison of egg-bank and long-term plankton dynamics of two *Daphnia* species, *D. hyalina* and *D. galeata*: Potentials and limits of reconstruction

Jankowski, Thomas, Dietmar Straile

Limnol. Oceanogr., 48(5), 2003, 1948-1955 | DOI: 10.4319/lo.2003.48.5.1948

ABSTRACT: Resting eggs of planktonic organisms from datable sediment cores are increasingly used to reconstruct historical information on the abundance, size, genetic composition, and microevolution of planktonic organisms. All of these studies have relied on the (up to now) mostly untested assumption that the resting egg bank in sediment will indeed allow an accurate reconstruction of past populations. Here we test the performance of the egg bank to reconstruct historical data of the *Daphnia* population of Lake Constance, which was thoroughly investigated throughout the past century. We show that it is possible to reproduce the variability in the abundance, size, and genetic composition of *Daphnia galeata* within a period of ~2 decades. Furthermore, resting egg data allowed us to reconstruct the timing of the invasion of *D. galeata* into Lake Constance. However, the egg bank did not reconstruct (1) the dynamics of the native *Daphnia* species of Lake Constance, *D. hyalina*, and (2) the relative importance of the two *Daphnia* species. We present evidence that the latter is caused by differences in the sexually reproductive activity between the two species. The failure to reconstruct the long-term dynamics of *D. hyalina* in the lake is most probably due to a change in the frequency and timing of sexual activity during the course of eutrophication.

Article Links

[Download Full-text PDF](#)

[Return to Table of Contents](#)

Please Note

Articles in L&O appear in PDF format. Open access articles may be freely downloaded by anyone. Other articles are available for download to subscribers only, or may be purchased for \$10 per article. All L&O articles are moved into Open Access after three years.