

COMPARATIVE ASSESSMENT OF PHYTOPLANKTON PHOTOSYNTHESIS USING
CONVENTIONAL ¹⁴C-DETERMINATION AND FAST REPETITION RATE FLUOROMETRY IN
FRESHWATERS

Kaiblinger Ch., Teubner K. and Dokulil M.T.

Institute for Limnology, Austrian Academy of Sciences, Mondsee, Austria

Estimates of primary productivity are derived from comparative profiles of phytoplankton photosynthetic rates in an oligotrophic deep alpine lake, Mondsee, Austria. Continuous profiles of instantaneous rates are obtained by Fast Repetition Rate Fluorometry, a technique novel to freshwaters. Fluorometric measurements are transferred into carbon fixation measured directly during three-hour incubations at discrete depths. Preliminary results indicate that instantaneous rates of photosynthesis are higher than measurements derived from conventional techniques in oligotrophic freshwaters. If this holds true, photosynthesis in oligotrophic lakes has so far been under-estimated.