

During July of 1999 sampling was carried out in five Andean lakes to determine the sensitivity of winter phytoplankton communities to ultraviolet-B radiation (UV-B, 280-320 nm). The studied lakes, Moreno, El Trébol, Nahuel Huapi, Gutiérrez, and Morenito, located in the Patagonia region (41° S, 71° W, 800 m of altitude), had attenuation coefficients for UV-B that ranged from 0.36 m⁻¹ (Lake Moreno) to 2.8 m⁻¹ (Lake Morenito). The samples were inoculated with labeled carbon (NaH¹⁴CO₃) and incubated in an illuminated chamber (UV-B = 0.35 W m⁻², UV-A [320-400 nm] = 1.1 W m⁻², and PAR [400-700 nm] = 10.8 W m⁻²) at 10 °C. The phytoplankton cells were exposed to UV radiation (280-400 nm) + PAR (quartz tubes), and to UV-A + PAR (quartz tubes covered with Mylar-D). The total duration of the experiments was 4 h and two samples were taken from each treatment every hour. In lakes Moreno, El Trébol, Nahuel Huapi and Gutiérrez, the photosynthetic inhibition increased linearly with UV-B doses, while in Lake Morenito just a slight relationship was observed. After receiving a dose of 1.25 kJ m⁻² (UV-B), phytoplankton from Lake Morenito had the highest cumulative photosynthetic inhibition (44 %), whereas in Lakes Moreno, El Trébol, Nahuel Huapi and Gutiérrez the inhibition was of 22, 11, 5, and 1 %, respectively. However, at the end of incubation period and after receiving doses of 5 kJ m⁻², the most inhibited phytoplankton cells were from Lake Moreno (70 %) and the most resistant (27 %) was that from Lake Gutiérrez. The kinetics of inhibition was different in each lake, and transparent lakes, with higher proportion of large cells, had higher inhibition rates. The results suggest that an increase in UV-B radiation (e.g., produced by a decrease in stratospheric ozone) would have a greater impact on microplankton from clear lakes, while pico- and nanoplankton from less transparent lakes will be less affected