Chilean Patagonian lakes are mainly oligotrophic, with low dominance of daphnid cladocerans in zooplankton assemblages, mainly of the genera *Daphnia* and *Ceriodaphnia*, and a high dominance of calanoid copepods, mainly of the genera *Boeckella* and *Tumeodiaptomus* (Soto and Zúñiga 1991). This pattern is contrasting to that in North America lakes where daphnids tend to dominate in zooplankton assemblages (Soto and Zúñiga 1991, Gillooly and Dodson 2000). Nevertheless currently in Chilean lakes between 38 and 41°S, a gradual transition from oligotrophic to mesotrophic state has been reported (Campos et al. 2001, Wolfl et al. 2003). This eutrophication has been caused by an increase of nutrient inputs from human activities (Soto 2002). The increase in chlorophyll *a* concentration may result in an increase of daphnid abundance (De los Ríos and Soto 2006).

In the present study the indicators of trophic status and daphnid abundance are presented for two periods 1992–1993 and 2001–2002 and for different bays: polluted (close to urban areas) and unpolluted ones, in deep subtropical lake – Llanquihue Lake.
estimated according to De los Ríos and Soto (2006). The obtained data were analyzed using t-test and assuming non homogenous variance (Zar 1999).

The data revealed a relative oligotrophic status and low daphnid percentage for data collected in 1992–1993. An increase in chlorophyll a concentration and daphnid percentage in polluted bays as well as in unpolluted Ensenada bay was noted in 2001–2002, whereas there was no directional changes in the nutrients concentrations in the above periods (Table 1). The significant differences for SRP ($P < 0.027$), DIN ($P < 0.012$) and daphnid relative abundance ($P < 0.027$) were found for polluted and unpolluted bays in 2001–2002, whereas the average values of Chl a, although being much higher in polluted sites are not significantly different from unpolluted one (Table 1) ($P < 0.468$). For the period 1991–1992 the significant differences for DIN ($P < 0.021$) and daphnid relative abundance ($P < 0.027$) were found, whereas no significant differences for SRP ($P < 0.499$) and Chl a ($P < 0.123$) were noted. The results of inter-period comparison of polluted bays did not reveal significant differences for SRP ($P < 0.976$), Chl a ($P < 0.166$), but a weak (marginally significant) differences for DIN ($P < 0.080$) and daphnid relative abundance ($P < 0.084$). Finally, for unpolluted Ensenada bay (Table 1) no significant differences were found between periods for SRP ($P < 0.653$), Chl a ($P < 0.135$), and daphnid relative abundance ($P < 0.438$), whereas a weak (marginally significant) difference ($P < 0.080$) was stated for DIN.

The obtained results agree with similar ones for Araucanian lakes, such as Riñihue lake at 39°S (Woelfl et al. 2003), that has an oligo mesotrophic status, with relative high daphnid abundance (De los Ríos and Soto 2006). The similar relation between trophic status and daphnid dominance was described for New Zealand lakes (Jeppesen et al. 2000), that share the same zooplankton genera with Chilean lakes (Soto and Zuñiga 1991). Also, the Llanquihue lake is a typical subtropical warm monomictic lake (Campos et al. 1988), such as the Chilean Patagonian lakes (Soto 2002, Soto and Zuñiga 1991), and this condition would allow sustain abundant daphnid populations, considering that optimal temperature for daphnids is between 15–20°C (Gillooly and Dodson 2000).

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