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Macrophyte-dominated Clearwater State of Lake Mogan

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Abstract: In this study, the water chemistry and zooplankton community of Lake Mogan studied between March 1997 and April 1998. Small-scale industries, crop-farming, urban settlement of the municipality of Gölbaşı with the untreated raw sewage effluent and recreational activities are examples of the human impact within the catchment and the lake, leading to high loading of DIN and TP into the lake via the inflows. However, the natural wetland with the dense reedbeds (Çölovası or ,Çökek Bataklığı), located on the southern end of the lake, appear to act as a sink for these nutrients. Therefore, the in-lake concentartions of DIN and TP were significantly lower than those of the inflows. Lake Mogan appeared to be in a macrophyte-dominated clearwater state with low TP (annual mean: 63 mg l -1) and chlorophyll-a (annual mean: 8.47 mgl -1) concentrations and very high Secchi depth (the bottom of the lake), and with submerged plants covering almost the entire lake. The grazing pressure of the dominant pelagic zooplankton, Daphnia sp. and Arctodiaptomus sp., did not seem to be significant in determining the low phytoplankton crop expressed as chlorophyll-a. The luxury nutrient uptake of submerged plants and associated epiphytes may have been the dominant stabilising buffer mechanisms suppressing the phytoplankton crop of the lake.

Key Words: Alternative stable states, shallow lake, submerged plant, zooplankton grazing, wetland.

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