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Güllük Lagoon (Aegean Sea, Turkey) Ecosystems

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Abstract: Güllük Lagoon has an area of 2500 decares with a depth of 0.5-5.0 m and is connected to Güllük Bay by a channel. In this study, samplings of phytoplankton and benthos were taken physico-chemical parameters were recorded monthly during 1993 at 5 stations. The temperature reached a minimum of 10.42°C in January and a maximum of 26.9°C in July, with a mean annual temperature of 19.53±1.511. The salinity in the lagoon ranged from 7.48 ‰ to 13.92 ‰ in January and March, respectively with a mean annual salinity of 10.65 ± 0.555. Dissolved oxygen in the sub-surface (0.25 m) water was 5.56 mg l⁻¹ in June and 9.06 mg l⁻¹ in February, with an annual mean 7.31 ± 0.331. The Secchi-disk depth was 1.12 m in May and 2.40 m in October. Nutrient measurements revealed moderately high levels of ammonia (ranging from 4.39 to 29.70 µg-at l⁻¹), low nitrate (0.81 to 17.87 µg-at l⁻¹), nitrite (0.19 to 1.35 µg-at l⁻¹), phosphate (0.01 to 0.45 µg-at l⁻¹), and silicon (0.26 to 6.00 µg-at l⁻¹). Chlorophyll a distribution generally indicated that productivity was highest in May (21.49 mg l⁻¹) and lowest in September (0.77 mg l⁻¹). *Melosira moniliformis* was the predominant phytoplankton species. All of the stations were characterized by high species diversity. Identification of the benthic species was carried out with 60 samples collected from 5 stations in a of one year period. As result 68 benthic species belonging to 7 taxa (Nemertina, Polychaeta, Oligochaeta, Crustacea, Mollusca, Insecta, Echinodermata) were identified. The polychaetae were numerically dominated by *Notomastus latericeus* (3737 individuals), followed by *Hediste diversicolor* (1524 individuals), and *Spionidae* (sp) (1361 individuals). Economically important fish species in Güllük Lagoon consist of mullets (*Mugil cephalus*, *M. capito*, *Chelon labrosus*, *Liza saliens*), *Sparus aurata* (gilthead sea bream), *Dicentrarchus labrax* (sea bass), *Solea solea* (sole), *Anguilla anguilla* (eel) and *Cyprinus carpio* (carp), with an annual yield varying from 10 to 69 tonnes.

Key Words: Güllük lagoon, physico-chemical parameters, planktonic and benthic organisms, fish productivity

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