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## Spatial distributions of biomass and species composition in submerged macrophytes in the southern basin of Lake Biwa in summer of 2002

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### Abstract

Spatial distributions of the biomass and species composition in submerged macrophytes in the southern basin of Lake Biwa were surveyed in September, 2002. Macrophyte samples were collected from 52 sites by SCUBA. The total biomass (dry weight) of and the vegetated area of macrophytes in the southern basin during the study period were estimated as  $10735 \pm 3030$  t, and  $43 \text{ km}^2$ , respectively. *Potamogeton maackianus* was dominant, and *Hydrilla verticillata*, *Ceratophyllum demersum*, *Egeria densa* and *Myriophyllum spicatum* were also abundant in the basin. Biomass of these five species accounted for 99% of the total macrophyte biomass. *P. maackianus* and *C. demersum* showed high niche overlap (Pianka's  $\alpha = 0.71$ ). Biomass of *P. maackianus* was positively correlated with the average transparency/water depth ratio (Spearman's  $\rho = 0.50$ ), suggesting that *P. maackianus* tended to grow at the bottom under strong light. Biomass of *C. demersum* showed a positive correlation with transparency ( $\rho = 0.44$ ). Biomass of *E. densa* was negatively correlated with the sediment diameter ( $\phi_{\text{mean}}$ ) ( $\rho = -0.40$ ). The quantitative composition of macrophyte species in 2002 was quite different from that of 1936 when macrophytes were flourishing in the southern basin.

**Key Words:** [Lake Biwa](#), [southern basin](#), [submerged macrophyte](#), [biomass](#), [species composition](#)

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