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Short Communication

Quantitative investigations of the vegetation, macro- and meiofauna in the littoral zone of the Archipelago of Luleå – Bothnian Bay*

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During the summer of 1976 a large scale ecological investigation was carried out in the archipelago of Luleå to quantify the different subsystems and to establish whether dredgings performed in the area had any quantifiable effects upon the local ecosystem. This is a presentation of the results from the littoral subsystem.

The investigated area covers 190 km², with a mean depth of only 7.1 m. The area covered by vegetation amounts to 40 km². The littoral zone consists mainly of sandy bottoms (76 %), but muddy bottoms dominate in the inner sheltered parts. The salinity is about 1–2 ‰S. The area is influenced by the outflow of the River Lule älv and dredgings performed in the inner parts. The upper zone of the littoral is heavily influenced by water-level fluctuations induced by weather changes and by ice movements during winter and spring.

Sampling was made along 16 transects by SCUBA-diving, using the method described by JANSSON and KAUTSKY (1977) and in accordance to the recommendations by the Baltic Marine Biologists (DYBERN et.al., 1976).

Average plant biomass on muddy and sandy bottoms amouted to 11.5 and 6.9 g dryweight/m² respectively. The dominating species found on muddy bottoms were *Isoetes lacustries*, *Potamogeton perfoliatus*, *P. gramineus* and *Vaucheria dicotoma*. On sandy bottoms *Cladophora aegagrophila*, *C. glomerata* and *Nitella flexilis* dominated. The vergetation showed a clear zonation along the depth gradient.

Average macrofauna biomass on muddy and sandy bottoms was 1.3 and 0.9 g dryweight/m² respectively. On muddy bottoms the dominating species were *Lymnaea peregra*, *Valvata piscinalis*, *Gyraulus acronicus*, Trichoptera, Ephemeroptera and Chironomidae, and on sandy bottoms *Mesidothea entomon* and *Theodoxus fluviatilis* dominated.

The average meiofauna biomass amounted to 0.4 g shellfree dryweight/m² on muddy bottoms and 0.2 g shellfree dryweight/m² on sandy bottoms. The mean abundance of meiofauna was $1.4 \cdot 10^6$ and $0.6 \cdot 10^6$ ind/m² on muddy and sandy bottoms respectively. The most abuandant meiofauna groups were nematodes and harpacticoids. Oligochaetes were also rather important. The ratio macrofauna dryweight to meiofauna shellfree dryweight was 3.5 : 1 on muddy bottoms and 4.3 : 1 on sandy bottoms. Compared with other parts of the Baltic, the biomass is very low.

References

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