

EFFECTS OF BREAKWATER CONSTRUCTION ON THE DISTRIBUTION OF TRANSPLANTED EELGRASS BED (*ZOSTERA MARINA* L.)

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The objective of this study is to clarify the effects of wave reduction by the construction of a breakwater on a transplanted eelgrass bed (*Zostera marina* L.). We investigated environmental conditions and structures of the transplanted bed before and after the construction of the breakwater at the coast of Shimokamagari Island in the Seto Inland Sea, Japan.

Wave heights at the transplanting area decreased to less than 1/5 by the construction of the breakwater and they were smaller than those in the natural adjacent eelgrass beds. Bottom sediments were stable inside the breakwater, whereas sediment disturbance was large enough to uproot eelgrasses outside of the breakwater in winter. The area of transplanted bed inside the breakwater expanded to more than two times in two years after the transplantation. However, the transplanted sites had larger deposits on the leaves than those in the natural bed. Light intensity at the surface of eelgrass leaves in the transplanted bed was lower than that in the natural bed. The depth limit of the transplanted bed was shallower than the natural bed.

These results suggest that decrease in sediment mobility by wave reduction expanded the transplanted bed, whereas the increase in deposits on the leaves due to embayment affected the distribution of eelgrass.