

Physical and chemical factors in bare spots of seagrass beds on the coast of Iwakuni, Seto Inland Sea, Japan.

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The study aims to clarify the growth of seagrass beds on the coast of Iwakuni, Seto Inland Sea, Japan and simultaneously investigate long-term changes and seasonal fluctuations in bare spots that have formed in seagrass beds. In addition, the study aims to identify growth conditions and to clarify the causes of bare spots by comparing environmental conditions such as sediment characteristics and flow fields in seagrass beds and bare spots and by transplanting and seeding *Z. marina* in seagrass beds and bare areas.

The position and surface area of the seagrass bed changed by season and by year, but there were no major changes in the position and the surface area of the bare spot between the onshore seagrass bed and the offshore seagrass bed. Within the seagrass bed, shoot density and shoot height correlated with flow velocity and depth of erosion, but the results suggest that erosion of the sediment is not affected by flow velocity in the bare spot. *Z. marina* did not survive when transplanted to the bare spot in which no *Z. marina* had previously been established, and there was almost no germination of *Z. marina* seeds planted there. The bare spot formed between the seagrass beds in the western part of Hiroshima Bay because erosion of the sediment inhibits *Z. marina* growth, and erosion is caused by breaking waves due to the slope of the sea bottom.

Keywords: *Zostera marina*, *Zostera japonica*, Bare spots, Breaking waves

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