Restoration Technology of Seagrass Beds

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In Japan, eelgrass Zostera marina (Linnaeus) widely distributes in the shallow and calm coastal sea areas. The eelgrass beds play an important part in coastal ecosystem and cultivating of fishery resources. However. large part of eelgrass beds has disappeared due to water pollution and coastal development represented by reclamation in the process of the past rapid industrialization.

Major technique for eelgrass bed restoration is transplanting subterranean stems by SCUBA divers. These techniques are not available for wide area restorations.

A transplanting machine and planting technique are developed for adaptation to wide area restorations. This process is as follows, I) subterranean stems with soils, 30cm depth from bottom surface, are removed with particular buckets ,2) subterranean stems and soils are put on sea bottom ,using the buckets, Leave as they are removed.
This technique can transplant plural class of eelgrass community and benthic fauna at the same time. This technique has given satisfactory results at a site in Hiroshima prefecture.

Even in using this technique, transplanting and reproduction of eelgrasses will not success without suitable condition of external forces. This relation became clear from an observation at Takeoka beach, Chiba prefecture. In this observation, surveying of distribution of eelgrass and calculation of external forces (wave, current and bottom elevation exchange) by a computer simulation model were carried out at the same plane. From a comparative study of external forces and distributions of eelgrass, it is revealed that distribution of eelgrass can be explained from a parameter of Shield's number, which means the condition of sand particle movements.

The eelgrass community can distribute where shields number ranges within 0.5 and bottom sediment accumulates in the ordinary stormy condition (Hl/3= I .Om). This means that the distribution of eelgrass community needs considerable wave and current. This condition of external forces corresponds to the seed burying condition. This condition applies plural site of eelgrass community.