

Toward the Restoration of Tidal Flat

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In the Seto Inland Sea, the area of natural tidal flat was decreased to nearly the half during the past 100 years due to the reclamation and the reconstruction of the seashore. In recent years, the raising of the awareness concerning the significance of tidal flats in marine coastal ecosystem and also the function of purifying the polluted seawater has been increasing remarkably.

From the viewpoint of environmental improvement, many trials of the restoration of the tidal flats have been implemented in many places. Though there been remaining many tidal flats in the Suo Nada sea area in the Seto Inland Sea, natural one have been on the decrease year by year.

Toward the restoration of tidal flats and recovery of ecosystem deteriorated by human impacts, Yamaguchi Prefecture constructed artificial tidal flat to restore the destructed tidal flat in Mitajiri bay, Hofu city and has been monitoring the state of the constructed area.

Mitajiri bay is the semi-closed bay situated in the near center of the coastline of Yamaguchi Prefecture part of the Seto Inland Sea. Just like other bay area, the considerable part of Mitajiri bay was reclaimed, and coastline was reconstructed to conserve the land. The area of the tidal flat has been reduced by 41% during the past 20 years. The remaining natural tidal flat area is decreasing due to the lack of supply of the land soil.

The tidal flat was constructed along the seashore at Gougasaki, Mukoushima Island, in Mitajiri bay with an area of about 1 ha. The soil for construction was dredged and carried from the river mouth of the Tyozu River where is on the other side of the bay. The tidal flat was made of carrying the Grab-dredged soil by the flat bottom boats, and leveling them with the caterpillar. The special device for preventing soil from flowing out was not made because a slight inclination of 100:1 was set on the constructed flat. In order to compare the effects of soil from river mouth and that from land, mountain soil was added to a certain part of the constructed flat.

After a year and a half, the shape of the tidal flat has been getting to its original state because of the outflow of the soil.

The benthos mass recovered quickly. After a month, the average number of the benthos was almost the same as it had been before construction.

In the artificial tidal flat, diversity and number of the benthos have been almost the same as in the natural one. The remarkable change of the benthos was not seen before and after the construction.