

## Seafloor environmental changes resulting from reclamation of the nineteenth century in Mishou Bay, Bungo Channel, Southwest Japan

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Mishou Bay is a semi-enclosed bay located along the southwest coast of Ehime Prefecture. The bay has a total area of 7.0 km<sup>2</sup>, with a length of 6.0 km in an east-west and 2.5 km in a north-south direction. During the late 1700's and 1800's, reclamation has been carried out around the mouth of Souzu River which flows into the eastern part of the bay. This study reconstructed environmental changes to the seafloor associated with the reclamation during the nineteenth century in Mishou Bay based on measurements of grain size, ratio of total organic carbon to total sulfur (C/S ratio), kerogen-like material (KL) composition and <sup>210</sup>Pb and <sup>14</sup>C dating from nine sediment cores. A grain size profile from the mouth of Souzu River shows a gradual increase in grain size up through the sediment core. This change in grain size suggests that the delta system of Souzu River has gradually prograded from the river mouth. In contrast, grain size profiles from the middle part of Mishou Bay decreased from the beginning of the 1800's to the 1900's, and sedimentation rate based on <sup>210</sup>Pb and <sup>14</sup>C dating increased in 1860's. These results indicate a decrease in tidal current velocity in the middle part of the bay. Records of C/S ratio indicate that the effect of freshwater became stronger from the beginning of 1800's to 1900's. At the same time, KL composition indicates that terrestrial organic matter increased. These results suggest that the effect of the river on seafloor sedimentation became stronger. These changes in tidal current and river water are related to reclamation around the mouth of Souzu River during the nineteenth century. The decrease in sea area resulting from reclamation probably led to a decrease in tidal prism and current velocity in the part of Mishou Bay; as result, grain size also decreased and sedimentation rate increased. It is likely that the increasing effect of river water on sedimentation is associated with reclamation-related progradation of the river delta system from the mouth of Souzu River to the middle part of the bay. However, the influence of reclamation is very little in the southern and western part.