

Impacts on the riverine estuary area of the Kitakami River by the Great east Japan earthquake disaster

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1. Introduction

Tsunami caused by the Great east Japan earthquake disaster has given extensive damages on the Tohoku region mainly on the Pacific maritime area. That Tsunami has not only deprived people of lives and properties but also given serious damages on the natural environment of those areas.

Here, we are to report the effect that the Tsunami has made on the environment of the riverine estuary mainly on the reedbeds based on the survey results made on the river mouth of the Kitakami River that has passed around one year from the disaster

2. Overall condition of the vegetation on the river mouth after disaster

The survey was made on March 2012 in the area from the river mouth of the Kitakami River to Kitakami barrage (17.2kp : Distance from the river mouth (km)) as shown in Fig. 1. Implemented survey items were river geomorphology, vegetation and sediment along the river corridor.

Before the disaster, almost all the flood channels from 2kp to 9kp were covered by mainly reedbeds, and salt marsh vegetation and Ogi (*Miscanthus sacchariflorus*) have grown in a little higher portions at the periphery of the flood channels. Survey after the disaster has revealed that the vegetation area was reduced to the half and almost all of the observed vegetation were reedbeds with only a small magnitude of new salt marsh vegetation observed around 6.5kp.



Fig. 1 Surveyed area in the Kitakami River mouth (downstream of the Kitakami Barrage)

3. Effects on the reedbeds caused by the Tsunami deposit and ground subsidence

As probable causes of the effect on the reedbeds in the riverine estuary, it is considered the erosion by the Tsunami, changes in the altitude and salinity by ground subsidence, and burial on land by the Tsunami deposit.

Reedbeds around the Kitakami River mouth were largely flushed away by the Tsunami, in which survived dimension was reduced to the half. Further the vegetation ground level has lowered due to the ground subsidence and we have found that it was difficult to bring up reeds due to the effect of the increased salinity in the area from 0kp to 4-5kp.

Also, though the effect of the salinity was not critical in the upper stream over 5kp, still largely affected by the deposit brought by the Tsunami (mainly sand from the sea), there found no new growth in those places that have thick Tsunami sediments as shown in Fig. 2.

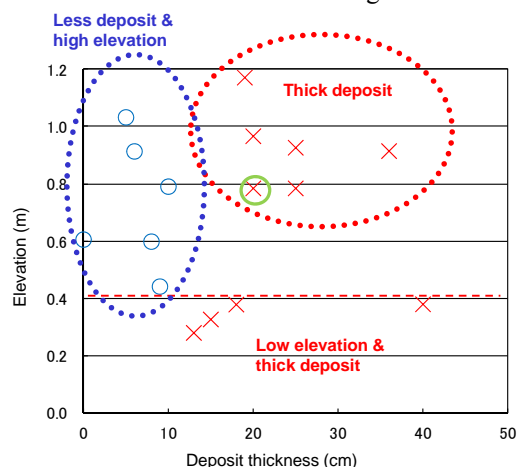


Fig. 2 Impact on Reedbeds by the Elevation Level and Thickness of Tsunami deposits (o : New growth observed, x : New growth not observed)

【Reference】

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