

## **Study of streambed sand and gravel size that are used for river-related trichopteran larvae which having portable case**

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Movement of river sediment is disturbed by dams, such that the particle size composition of the riverbed downstream of dams is different to that in the reaches upstream of dams. As a countermeasure, the sediment that is deposited in a dam lake is redistributed to the reaches downstream of dams. However, there have been few studies that have examined the effects of such measures. This study focuses on the size and number of grit particles used by trichopteran larvae, which use streambed sand to construct portable cases. In a previous study, we demonstrated that sand and gravel particle size affects larval enlargement and movement in the trichopteran *Nothopsyche ruficollis*. On the basis of these observation, we assumed that similar phenomena may be observed in other trichopteran species. The particle size composition of the riverbed was examined at different sites near a dam and also near a cultivated field where the amount of sediment is reduced, and we compared the cases of Trichoptera (*Goera japonicas*) inhabiting three sites downstream of the dam with those at sites upstream of the dam. In addition, we measured the following features of the physical environment of sites inhabited by *G. japonicas*: the distance from the surface of the water to an individual, the distance from an individual to the riverbed, the size of the stone on which an individual was found, and the water velocity at the position where an individual was found. The length of the larval case was found to be small at all downstream sites. The size of the sand was significantly smaller at only one downstream site; however, on the basis of field measurements, we could not detect any significant difference in the number of sand particles used to construct cases. These observation indicate that the number of sand particles used for case construction was not different at sites downstream of dams; however, it is possible that there is a small difference in the size of sand particle used, which was reflected in the smaller size of larval cases at downstream sites. A stone of around 25 cm might be short in the dam downstream, and the depth of the water that inhabited supported the size of the stone, but was less than 20 cm from the riverbed with all spots. The velocity of sites inhabited by many larvae was approximately 20 cm/s or less.