Distribution of Gravel in the Sakawa River and Factors Affecting the Distribution

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The distribution of rock in the midstream and downstream of the Sakawa River was studied.
In this study, two types of samples were taken at nine points: the first was 200 rocks collected in order of size from the surface of a 1m x 1m frame; the second was the 10 largest rocks within 10m from the frame. The investigation has been done three times. In the first stage, the rock distribution in the midstream and downstream of the river was surveyed at points 1, 6 and 9 in the attached map. The result was that several kinds of gravel decreased We hypothesized that this was due to the topographical characteristics of the fan and the valley bottom plain, and conducted the second stage of the survey at points 3, 4, and 5 shown in the attached figure, sandwiched between the valley bottom plain and the fan edge, respectively. In the third stage, to confirm these hypotheses, the surveys were conducted at point 2 in the attached map, which is upstream of the weir at point 3, and at points 7 and 8, which are the middle and lower parts of the same sandbar as point 6.
In conclusion, in addition to the armoring and the feature of the grain size distribution of the sandbar, the following four things were found from the first and second stages of the survey. First, large rocks were deposited due to selective transport in the two sections where the river gradient and depositional topography changed. The average grain size and weight percentage of tonalite and green schist decreased rapidly between points 3 and 4. These types of rocks were deposited by selective transport because of their large average grain size at point 3. Andesite, basalt, and fine-grained tuff were deposited by the same principle between points 4 and 5. Secondly, sandstone and conglomerate were rarely found in the area after point 6, suggesting that clastic rocks were susceptible to abrasion. Third,as there was almost no increase in the number of rocks that could be supplied by the tributaries at the points after the tributary confluence, it can be said that the tributaries in the middle and lower reaches did not affect the gravel distribution in the mainstream. Finally, the weight percentage of andesite and basalt and the grain size of the largest rock increased at point 4. The possibility that the andesite and basalt are supplied by the Sekimoto Hills and Asama Mountain in the vicinity of this point is under investigation. The results of the third stage of the survey are currently being analyzed. We would like to make a presentation including these results.

Keywords: The Sakawa River, river bed stones, sorting, abrasion, sandbars, armoring