

## Effect of bank slope steepness on terrestrial organic matter influx into stream channel.

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Most headwater streams in Japan run through forested mountains with steep gradient. In the stream channels, organic matter from surrounding riparian forests and primary production sustain aquatic ecosystems. Influx of organic matter into stream channel is caused as direct litter fall from upper riparian forest by tree species phenology, wind, rain and terrestrial insects' activity. Another source of organic matter is lateral movement from bank slopes. They are once dropped on ground, then flow into channel as lateral input by factors such as geological formation, soil type and ground cover. In addition to organic matter, sediment input must occur as lateral input. Geological formation would be an important factor that regulates lateral input where soil type and ground cover is same condition. In this study, we focused on stream bank slopes. We compared coarse particulate organic matter and sediment input pattern between two streams with different bank slope steepness.

Study streams were located in Ishikari city, Hokkaido, Japan. The topology is tertiary deposit, and the region around the streams is covered with brown forest soil. The one is first order stream with a 30.5 % gradient and over 45 degree bank slopes. Another is second order stream with a 6 % gradient and average 14 degree bank slopes. Two kinds of litter traps; for direct input from upper riparian forest and lateral movement from bank slopes, were placed at study reach of the streams. Using these traps, we collected coarse particulate organic matter (CPOM) and sediments. We separated CPOM to some categories such as leaves, twigs, sediments and other materials. Nitrogen content and carbon amount in the organic matter were measured.

In the first order stream, lateral movement from bank slope exceeded direct input from upper riparian forest. Especially, amount of sediment input was notable and more than CPOM input, while sediments contained 12-81 % of organic matter probably as fine particulate organic matter or adsorbate. On the other hand, in the second order stream, direct CPOM input was prominent. Lateral movement of CPOM was about 10 % of the direct input on area base, mainly as leaves in October. In the first order stream, amount of lateral sediment input was correlated with average total monthly precipitation. In addition to steep bank slopes, precipitation would accelerate sediment movement.

This study clearly showed different pathway of CPOM and sediments from surrounding riparian forests to an aquatic ecosystem. Bank slopes are key factor to affect organic matter and sediment input.