Natural Flood Management Techniques: Streambank Debris Stakes

Natural flood management techniques can reduce flood damage by mimicking natural river functions and can reduce the impacts to agricultural operations by slowing overland flow and dropping excess sediment out of the flood water before it lands on adjacent fields. Techniques include placement of large woody debris in or around a stream to reduce flows and capture debris during highwater events. This handout highlights the technique for **streambank debris stakes.**

What is it? Large logs driven into the streambank (staked) to act as a filter for woody debris that comes during high water events (Figure 1).

What do they do? Allow for uninterrupted streamflow within the stream channel, but once water flows *out of the channel*, the debris stakes will capture most woody debris, preventing it from depositing on land.

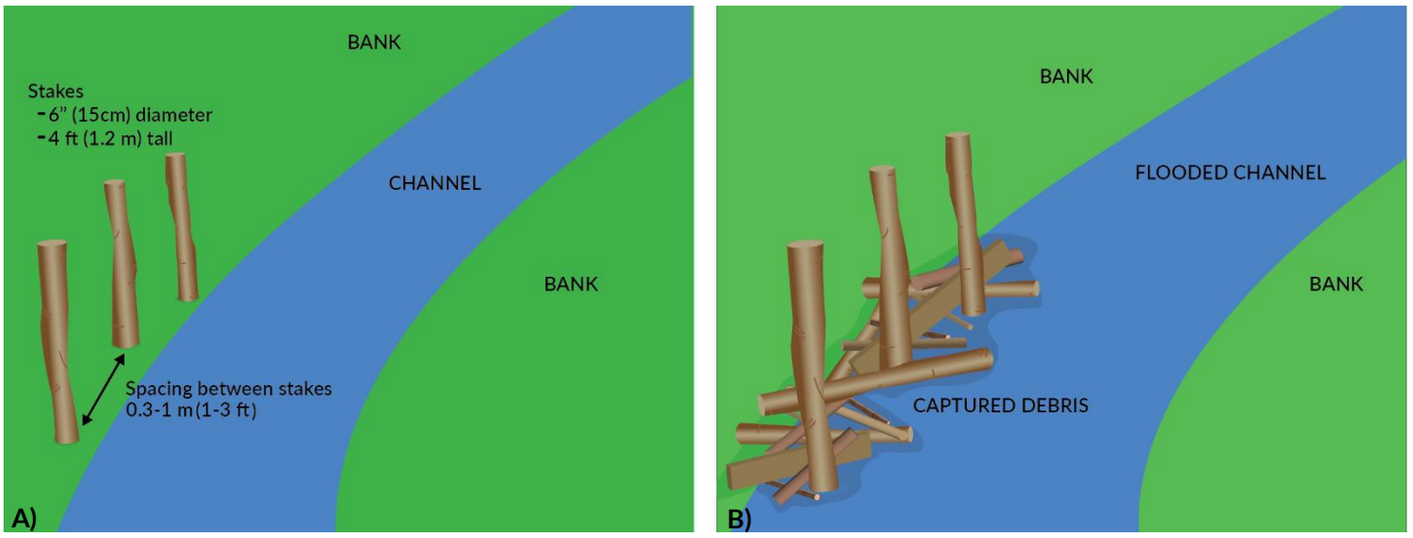

Figure 1: *A) Stream during normal flow conditions with debris stakes installed in streambank*
B) Steam during flood conditions with debris stakes capturing woody debris.

Permitting Requirements:

- Stakes can be installed above the stream on your land; however, permits are required to work within the streambank and should be completed with the aid of a qualified professional (e.g. biologist, agrologist etc.)

Guidelines for installing debris stakes:

- Make from salvaged logs that are at least 6 inches (0.15 m) in diameter and 4 ft (1.2 m) tall. Bigger and longer logs generally capture debris more effectively.
- Install 1-3 ft (0.3 – 1 m) apart in a row, parallel to the stream. At least two stakes should be installed per site. More stakes and reduced space between stakes help capture more debris.
- Drive stakes deep enough into the streambank to prevent dislodging during high flows. Larger streams will require the deeper staking.
- Install in areas where water regularly flows outside of the channel during heavy rainfalls/flood events. Otherwise, the stakes will not effectively capture debris.

Figure 2: *Debris stakes post flood event prevent debris from escaping the channel*

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