Round the Bend

"Never use an electric appliance while you are in the bathtub!"

Although it is not a great conductor of electricity, water can easily conduct the current that flows from your home's power outlet. The results are often deadly.

What about static electricity? Can water interact with non-moving charges?

Materials
- A plastic comb
- A pencil
- A plastic pen
- A piece of wool
- A sink

To Do
Turn on a water faucet. Adjust the flow to a slow but steady stream.
Pass the plastic comb through your hair several times. Slowly bring the comb close to the water. What happens?
Stroke a plastic pen with a piece of wool. Now move the pen toward the water. What happens?
Repeat this activity using a pencil. Does the pencil produce the same effect as the pen? Why?

The Science
Plastic is a good material for storing electric charges. As the comb travelled through your hair, it picked up a negative charge. When it was brought close to the running water, it induced a positive charge in the closest part of the flow. The positive water and the negative comb attracted and produced a bend in the flow. The plastic pen did the same.

As you might have guessed, wood is a poor storage material for an electric charge. The pencil did not keep enough charge to affect the water stream.

Check It Out! Could you produce a bend in a flow of water by using plastic that had been rubbed with silk?