

Travis Brown

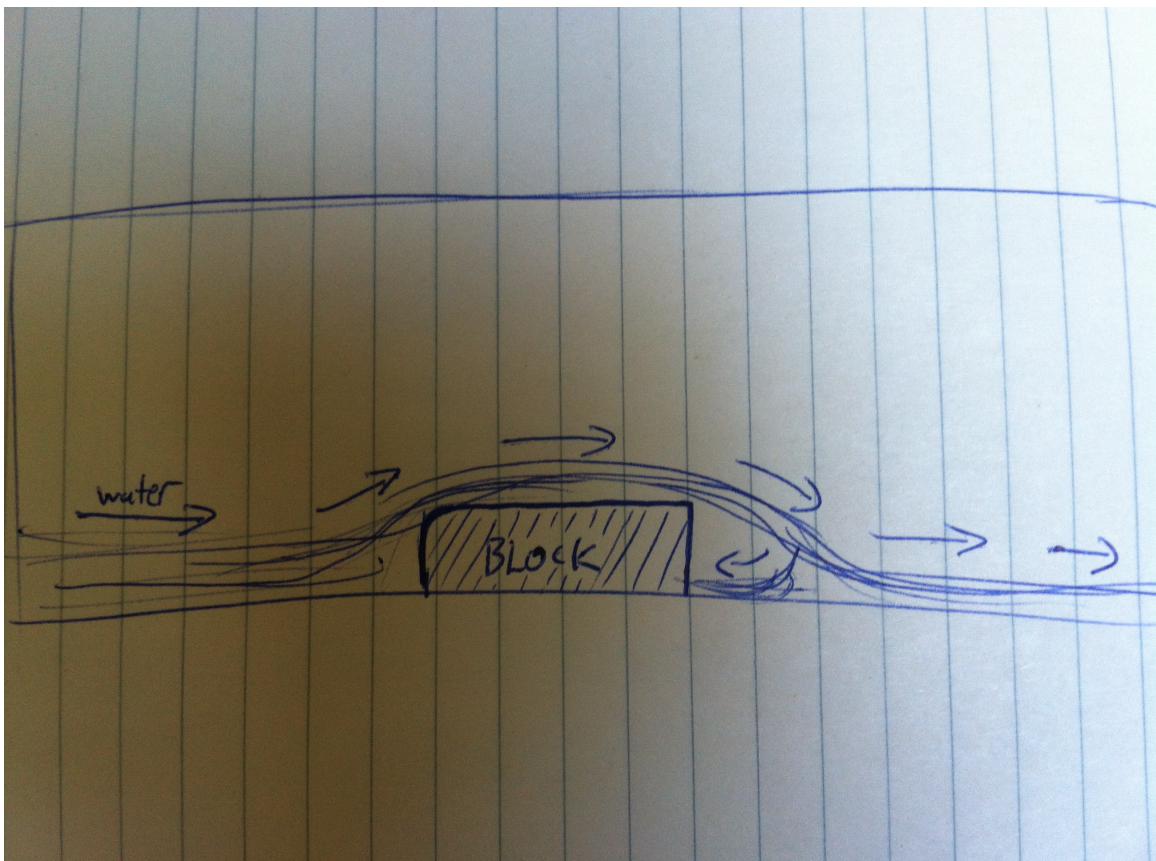
Team Image 2 Report

Flow Visualization – Spring 2012

Flume Flow

The intention of the image captured is to uncover the flow process of water through a flume when different obstructions are set in the way. In this particular shot the obstruction was a wooden block placed at the bottom of the flume, forcing the water to run over and dive off the back end. *See image 1 for set up sketch.*

IMAGE 1



The flow of the water over the block obstacle was contained within a flume that had a width of about 4 inches. The block in the *Image 1* is lodged between the glass walls of the flume so it won't move when water contacts it. This blocks the water flow and forces it to rush over the block. When the water reaches the end of the block we see it dive, leaving a gap right below the edge of the block. At the same time, this dive seems to create a current that circulates water to the base of the block and creates a puddle like area beneath the diving water. This is the area that resembles standing water in my image.

The flume visualization technique took place all indoors, so the lighting was mostly drawn from florescent lighting within the building. No flash was used in taking the photograph and no additional light was used either. The glass of the flume made it difficult to light without getting a glare in my images. Our flume stretched to about 12 feet in length and was constantly recirculating water. This allowed for a constant flow that enabled me to shoot over and over, adjusting to the elements as I shot.

The image captured covers an area of about 4 inches high and 6 inches wide, the area just after the obstructing block to the end of the flowing water's dive. The resolution of the image is 3488 px x 2356 px in the RGB color space. It was shot on a Canon EOS Digital Rebel XTi from about 2 feet away from the flume. The focal length at the time was 300 mm and the exposure time was 1/60 s. My f-stop light setting was set to 5.6 in order to balance the amount of florescent light in the scene. After the image was captured I took it to Photoshop

for some post-production steps. A re-crop and some color correction were the only minor changes needed to bring out the flow in the image. I used the curves correction tool to alter the brightness and contrast of the water and background.

The image reveals the variety of currents that can occur in a water flume. This can translate to the flow of water in a variety of environments. Water in motion will most likely stay in motion. If obstructed, it will find a way to keep moving as demonstrated here. This is demonstrated fairly well by the multiple directions the water in the image circulates and constantly replaces itself. Although this image is capable of displaying this, a more detail depiction may be achieved with a high-speed video capture.

IMAGE 2

