

Group Delta - Project 2

Group Delta begins to find their ability to function as a network of partners in order to complete a common goal. It wouldn't be a Delta experiment without the first idea falling through. We had planned on using dry ice to create smoke inside the wind tunnel to capture air flow around objects. However based on the tendency for group delta to pick a project which falls through; a 'plan B' was made ahead of time. When we gathered around the wind tunnel and were trying to power it up- we found that in addition to reserving it- we were supposed to have arranged for a person to unlock the power-control-box for the machine. With the wind tunnel not an option, plan B was set up to capture splashing fluid flows in an aquarium. Works by Martin Waugh were consulted at his "Liquid Sculpture" website. An attempt to capture a drop of water as it impinged on the surface of standing water was arranged.

A 10 gallon aquarium was filled with cool tap water half way. All of group Delta took turns lining up alongside the aquarium with cameras at the ready. A volunteer squeezed food-coloring from an eye-dropper into the tank from various distances. Several guess-and-check methods were used to shoot the fast moving liquid as it quickly mixed into the tap water. Because we had several pounds of dry ice intended for the wind tunnel, my partners wanted to throw it into the aquarium to photograph the effects. Therefore the water became very cold after the dry ice had been used. The ice-cold water slowed bubble and dye movements down a little which was better for photographing.

Pure food-coloring was used in ice-cold tap water. Previous colors of dye were still mixing with water in background of image. Bright spotlights were used (one halogen and one incandescent bulb) to light the aquarium from behind. A piece of Plexiglas was placed in-between the lights and the back of the aquarium to soften the light and provide neutral background.

The Field of view on this image is approximately 6 to 8 inches. Distance from object to lens was 1.5 to 2 feet. Image was captured at a focal length of 44 mm, an f-number of 4 and exposure time of 1/400 of a second (ISO was at 800). A Nikon D50 with a Nikkor lens was used freehand for all the photos. Photoshop was only used to crop and rotate the image 180 degrees. Final image size is 3008 by 1818 pixels (5.5MP).

The image reveals two drops of purple food-coloring impinging into the surface of the water. A previous drop of dye is seen to the right that is about 15 seconds older. To obtain this interesting effect of "floating dye", this was shot from very low angle- looking up at surface of water from inside aquarium. Water surface becomes more opaque and reflective at this angle while still showing all the physics. The shutter-speed was fast enough to freeze the motion of the dye and the timing of the shot was lucky enough to catch the drops before they became too turbulent and spread-out. A fascinating effect of water-tension captures a lot of the dye in a blob at the surface. After a small amount of time, the dye at surface can be seen (to right of center) dropping down due to it being heavier than the water. If I could change something about the image I would remove the small air bubbles in the back of the aquarium. The air bubbles show up as out of focus grey splotches in the background and remove from the aesthetic beauty (however Photoshopping them would be a lengthy process). In developing this area further I plan to shoot the same upside down effect on a larger scale and edit the water surfaces into high-definition panoramas to create a surreal water-surface with bubbles.