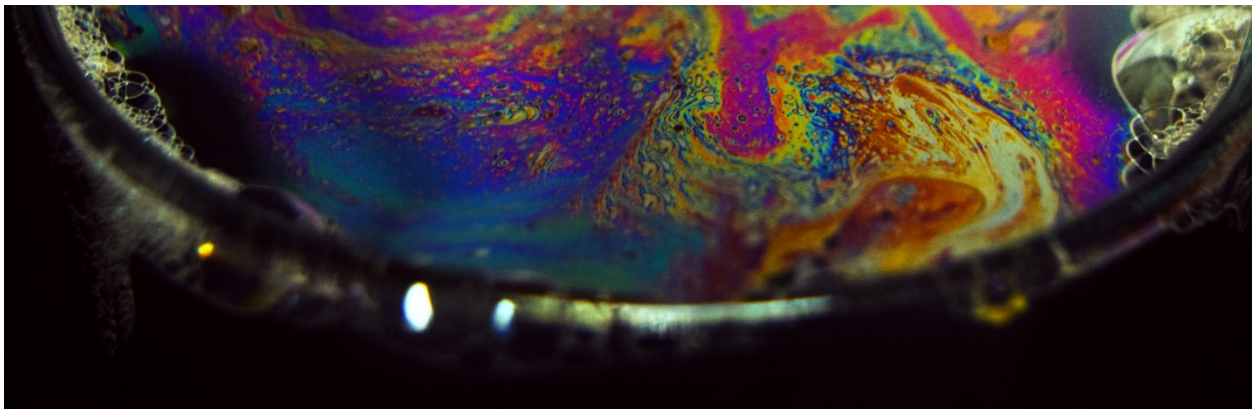


# **Team First Report**

*Fiona Wohlfarth*

Fall 2015

Flow Visualization: The Physics and Art of Fluid Flow

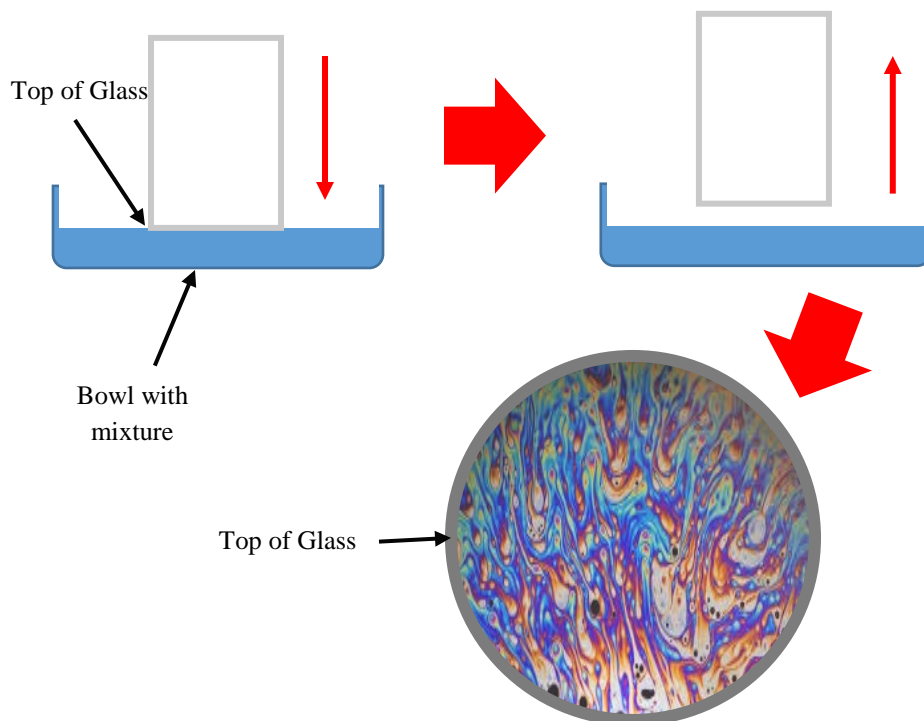


In this image, the flow and colors of soap film were captured using a 3"-diameter glass. Ordinary dish soap mixed with glycerin and a little water formed a soap film layer that settled to make an aesthetically pleasing swirl of colors. Materials for the setup are as follows:

1.  $\frac{3}{4}$  cup of dish soap (Dawn)
2.  $\frac{3}{4}$  cup of glycerin
3.  $\frac{1}{4}$  cup of tap water
4. 3"-diameter glass
5. Black poster paper
6. White poster paper
7. Desk lamp
8. Bowl

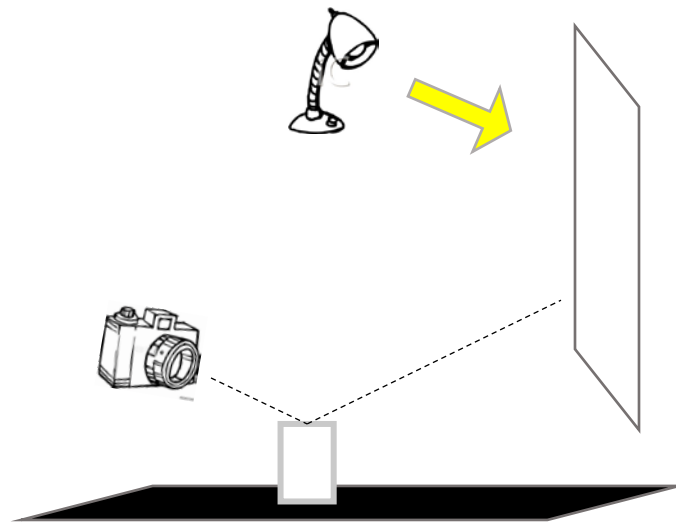
Alisen Bol and Dennis Can contributed to this setup and my final image.

The soap, glycerin, and water mixture were placed in small bowl. The glycerin is an incredibly helpful addition, as it thickens the soap film and holds it together, which helps it not break as easily. The top of the glass was dipped into the bowl and lifted out, leaving a soap film layer across the top.



Something to note about the lighting: a desk lamp was used to provide light for the image, however one must keep in mind the reflective nature of soap film. It is a transparent fluid, so to see it well, the glass had to sit on a black poster board. The light could not be directly facing the

film, but instead it was more important to illuminate what was reflected in the fluid—the white poster paper. The lighting setup was as follows:



Some editing was used for this photo using Adobe Photoshop CS6. The curves tool was used to enhance the appearance of the streaks and make them more predominant. The saturation of the image was also boosted, creating more of a contrast between the individual colors of the film. It was difficult to focus on the soap film as a whole, so the image was cropped to have only the film that was in focus. Aside from that, there was really no further processing of this image—I thought it contained a lot of natural beauty and didn't want to tamper with that too much.

A Nikon D3300 camera was used for this image. The specs were as follows:

- Exposure time: 1/60 sec.
- ISO Speed: ISO-1100
- Focal length: 32 mm
- Max Aperture: 4.3

The dimensions of the original image was 4193x2572 pixels, whereas the final image was 4193x1361 pixels. About one third of the image was cropped from the top, so with that in mind there didn't seem to be a huge loss in data from the original image.

This image portrays the natural beauty of soap film. I'm quite proud of this final image—I feel that I haven't changed the initial image all that much and was able to obtain a beautiful capture. The feel and look of this image was meant to be contrasted, yet beautiful, and that's what came of the final product.

## WORKS CITED

1. "Black and White Gooseneck Desk Lamp - Royalty Free Clip Art Illustration." *Black and White Gooseneck Desk Lamp - Royalty Free Clip Art Illustration*. N.p., n.d. Web. 04 Nov. 2015.
2. "'Cartoon Camera' Stock Photo and Royalty-free Images on Fotolia.com - Pic 83143719." *"Cartoon Camera" Stock Photo and Royalty-free Images on Fotolia.com - Pic 83143719*. N.p., n.d. Web. 04 Nov. 2015.
3. "Soap Film 5." *Everystockphoto*. N.p., n.d. Web. 04 Nov. 2015.