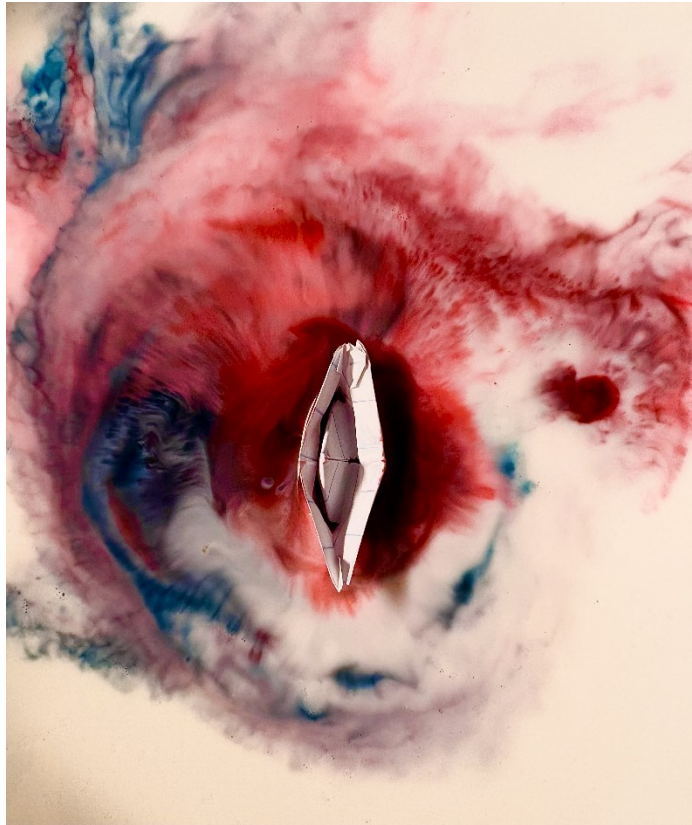


## Team Second



Edited picture.

### Context and Purpose

This image captures a sinking paper ship in a swirling vortex of red and blue dyes, created with milk and food coloring. I was aiming to merge science and art, replicating the drama of a shipwreck through the fluid dynamics of milk and dye. The red and blue dyes symbolize depth, red being deeper than blue.

### Flow Apparatus and Phenomenon

The setup for this experiment was straightforward: a shallow pan filled with milk that works as the medium, with a small paper ship floating on its surface, and blue and red dyes surrounding the ship. The dyes were applied and moved in a circular way to build the vortex.

Initially, the dye flowed smoothly, indicating laminar flow. However, as the motion intensified and mixed with the milk, the patterns evolved into more chaotic, swirling forms characteristic of turbulent flow. The interaction between the ship and the fluid generated dynamic shapes like spirals and eddies, emphasizing the contrast between smooth and chaotic motion.

### Visualization Technique

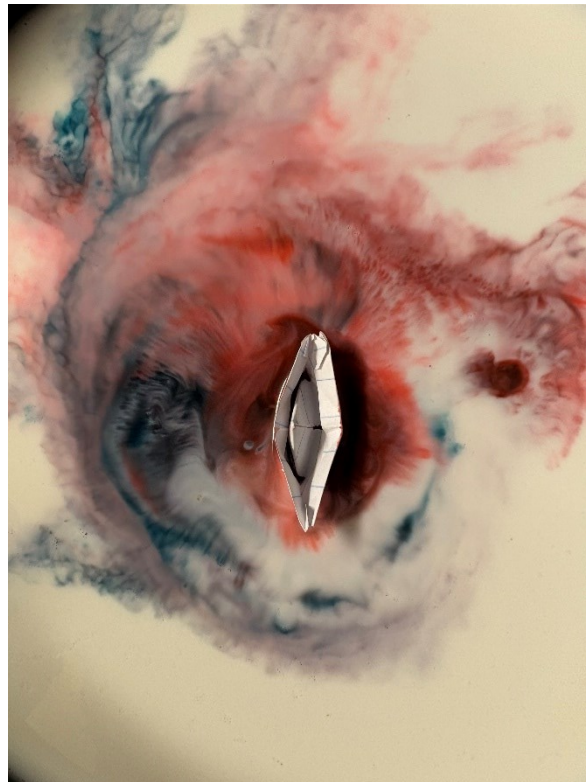
Milk acted as an ideal backdrop, providing a neutral, bright canvas that allowed the vibrant red and blue dyes to stand out. The red dye accentuated the vortex's central structure, while the blue dye radiated outward, creating a sense of depth and motion.

Kitchen LED lighting was used to illuminate the setup, avoiding unwanted reflections or glare. The stillness of the environment—free from external disturbances like drafts—helped preserve the intended flow patterns, with motion solely driven by controlled stirring.

### **Photographic Technique**

The image was captured using an **iPhone 12 Pro** equipped with a wide-angle lens. Key photographic details include:

- **Field of View:** 15 cm
- **Distance from Object:** 10 cm
- **Resolution:** [2857 × 3393] pixels
- **Exposure Settings:** Auto (aperture, shutter speed, ISO)



The original un-edited picture.

Post-processing included changing the contrast. The saturation and the shadow, and the image was cropped to emphasize the ship and vortex colors, and slight tweaks to brightness were made to enhance the vibrancy of the colors without changing the natural appearance.

## **Image Analysis and Reflection**

The resulting image effectively conveys the dynamic looks between the sinking ship and the vortex. The red and blue dyes not only enhance visual appeal but also create a layered, almost three-dimensional effect, guiding the viewer's focus toward the vortex's center.

While the outcome to me is satisfying, I think there is potential for further development. Future iterations could experiment with alternative colors and a new object better than the paper ship. Additionally, different stirring techniques could yield unique flow patterns, providing more opportunities to explore the balance between art and science in fluid dynamics visualization.