

Tyler Stratman

*Polygonal Shapes on a Rotating Fluid Surface*

The qualities of vortices are a common mystery in society. There has been an increase in interest and research involving turbulence, breakdown, and formation of vortices. The physics of free surface turbulence is a crucial part of understanding many interactions of fluids. The purpose of this research was to develop further insight into the world and power of fluid rotation. Nine different trials were set up involving 5 sets of different frequencies to determine the potential changes in polygonal formation and ergo different shapes that develop at varying rotational speeds and viscosities. The results showed that without an exact center of rotation, polygons will form best at medium velocity but may form and collapse at very fast rates, like waves in the ocean. However, with an exact center of rotation the higher the velocity, the lower the number of sides of the fluid polygons. These results provide insight into the dynamics of ocean wave formation and wave stability.