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Supercavitation Capabilities On a Submarine ZACHARY GALBERD, JOSEPH CUMMINGS, LUKE WALSH, KENNETH ADAMAS, HANI ALSHARIF, HAUKE BUSCH, Georgia College — Throughout history submarines have shaped the way wars have been fought and changed our understanding of fluid dynamics. In the past, an idea has been used to increase the velocity of torpedoes in Chinese and Russian Submarines, called supercavitation. An example of this is the Russian VA-111 *Shkval* torpedo. The idea being that if your submarine is traveling at a certain velocity underwater, and you are expelling a gas out of the nose cone region, thus creating a boundary layer, you will be "flying" in that new medium. This allows a torpedo to travel at faster speeds making any evasive actions of the targeted submarine or surface vessel extremely difficult. The purpose of our project is to explore the benefits and limitations of supercavitation. This information will then be implemented into a submarine to hopefully decrease its drag and increase its speed and efficiency. The obstacles we are facing include, finding ways to effectively create a boundary layer in the nose cone region suitable for submarine designs to travel through water. We are currently creating a rail and arm system to test different nose cone sections for use in a drag water tank.

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