



**CALIFORNIA STATE SCIENCE FAIR  
2003 PROJECT SUMMARY**

<b>Name(s)</b> <b>Thuy Cao; Eric Garcia; Oscar Padilla</b>	<b>Project Number</b> <b>S0102</b>
<b>Project Title</b> <b>Into the Deep, Again!</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The concept of ion propulsion was validated by substantial data of prior experiments (i.e. Into the Deep#2002). This experiment is a complex continuation of the previous investigation. However the object of this experimentation is to apply the concept of ion propulsion, which was proven to be true, into actual use. The ultimate aim is to incorporate this concept to produce a source of reliable and visually evident propulsion.</p> <p><b>Methods/Materials</b></p> <ul style="list-style-type: none"><li>· At least 4" of ½" thick PVC piping</li><li>· 4 right angle PVC fasteners</li><li>· PVC cement</li><li>· 1 hot glue gun</li><li>· At least 234sq. in. of zinc-galvanized mesh</li><li>· 1 10 gallon fish tank (18"x10"x12")</li><li>· 1 fountain pump</li><li>· At least 1½" of ¼" thick hose</li><li>· 8 gallons of distilled water</li><li>· 1 pipe cutter</li><li>· 1 pair of sheet metal scissors</li><li>· 1 1000 ml beaker</li><li>· 1 digital scale</li><li>· 1 volt meter</li><li>· 1 12 V car battery charger</li><li>· 1 marker</li><li>· 1 tape measure</li><li>· 16 zip ties</li><li>· 1 500 ml beaker</li><li>· 1 stop watch</li><li>· 200g of Zinc Chloride (ZnCl<sub>2</sub>)</li><li>· 120" of PVC piping</li><li>· 8 3-ringed PVC joints</li><li>· 6 T-ringed PVC fasteners</li></ul>	
<b>Summary Statement</b> Application of ion propulsion on an apparatus to create a self-exerted momentum.	
<b>Help Received</b>	