



**CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY**

Name(s) William J. Theaker	Project Number J1027
Project Title Can Pet Hair Get BP Out of the Doghouse?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals In my experiment I wanted to see if booms made of hair and other materials could do as well or better than normal oil absorbing booms to clean up oil spills. I believe that human hair will pick up the most oil because it adsorbs oil and is finer than the coarse dog hair, allowing more oil to cling to the increased surface area.</p> <p>Methods/Materials To test my experiment I stuffed hay, human hair, dog hair, and some oil absorbent sheets (control) into separate booms, and filled four tubs with 3 gallons of water and 2 quarts of oil in each. I then pushed the booms up and down and side to side in their separate bins until they could not soak up anything else.</p> <p>Results Human hair was the most efficient material at soaking up oil (13 millimeters), supporting my hypothesis. The second best method was the dog hair, soaking up 12mm of oil. The oil absorbent sheets were third, soaking up 11mm of oil. The hay was last; absorbing too much water in the tub, then sinking and making the water turbid with the rest of the oil. This suggests hay would soak up anything in which it comes into contact, proving not to be a solution to the oil problem.</p> <p>Conclusions/Discussion In my experiment I found that the best boom for cleaning up oil was the one with human hair. My hypothesis was correct because the human hair was finer than the coarser dog hair (which came in second), allowing more oil to cling to the increased surface area. The human and dog hair were efficient at collecting oil because hair adsorbs the oil, or clings to microscopic scales on the hair shafts (cuticle). The oil absorbent sheets and the hay were the least efficient. When the hay was used it absorbed too much water. Although it had the most weight, a lot of that was water. The hay boom then sank, making the water turbid with oil. I would not recommend hay to be used on a real oil spill because it would just soak up the first liquid it came into contact with. Also, hay placed in a nylon stocking would make the material harder to pick up. If I could do this experiment over I would change two things. I would use a PVC pipe to help stuff the materials in the pantyhose, and would use motor oil so I would be able to see it better.</p>	
Summary Statement Using dog hair, human hair, and hay to see if they would be a viable alternatives to synthetic booms for oil cleanup.	
Help Received Mother took pictures and helped get materials	