

Canal-Accumulated Trash Capture and Handling (C.A.T.C.H.)

Fitzpatrick, Jackson (School: Isidore Newman School)

Flooding in New Orleans and worldwide has caused loss of life and countless billions in property damage. In many cases, city drainage systems have not functioned properly due to debris clogging the drainage canals and pump intakes. The purpose of this engineering experiment was to design a device that could effectively and consistently retain and remove debris from drainage canals. I called the device C.A.T.C.H. (Canal Accumulated-Trash Capture and Handling.) I designed an experiment to test the effectiveness of the C.A.T.C.H. device. The C.A.T.C.H. devices were tested in an experimental scale model of a drainage canal. In the experiment, 50 pieces of debris, of 5 varieties, were flushed with 8 liters of water through the C.A.T.C.H. apparatus. The debris that the C.A.T.C.H. device successfully retained and removed to the side of the canal was counted and recorded. This test was carried out 10 times for each prototype. Each prototype was evaluated based on the results and a new improved prototype was built. Three prototypes were created. Each successive prototype was more effective than the previous version successfully retaining and removing 31%, 53%, and 92% of the debris respectively. The third prototype was highly successful. These results indicated that the C.A.T.C.H. device was effective at retaining and removing debris and suggested that C.A.T.C.H. would likely be useful in reducing the devastating damage of floods in cities around the world.

Awards Won:

