Self-Sufficient Micro and Macro Plastic Water Cleaning System

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More than 8 tons of plastic enters waterways as pollution. Plastics degrade over generations and slowly breakdown into micro pieces which are eaten by marine life and eventually by humans. Human consumption of plastics is expected to grow at a faster rate than the cleanup process. The hypothesis of using a self-sufficient water cleaning device was tested. The device was placed in bay water and anchored for 45 minute trials in depths of three feet. A solar panel was wired to power the device. Debris was held in the front end and collected in a filtering device. The front end of the device retained 92.5% of the debris after 4 trials of 45 minutes, including no loss in 2 trials. A total of 104 grams of micro plastics and micro debris was collected in the same trials. The data supports the hypothesis that a self-sufficient device cleans the water. The device successfully held and filtered debris. The entire system required minimal monitoring. Considering the amount of plastics in the waterways, this is an ideal system to assist in the environmental cleanup efforts.

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