

OFFICIAL ABSTRACT and CERTIFICATION

The Effect of Geometric Shapes on Reducing Beach Erosion

Jacob Karavias

Sachem North high School 212 Smith Road, Lake Ronkonkoma 11779

Erosion is when substances are being damaged by wind, water, or other natural agents. Beaches erode faster than other environments. This is because they consist of small nonadhesive sediments. Waves, longshore currents, storm surges, and hurricanes can cause excessive erosion. This project aims to solve the issue by using geometric objects to prevent the movement of beach sediments, specifically sand. The object, which will be under the sediments, will consist of a tetrahedrals placed in an interlocking formation. The main strategy is to create a foundation where sediments can be replaced. To replicate the water's movement, a gyre pump will be used to create a horizontal current that can be programmed to emulate many coastal water movements. To measure the effects of the erosion a Sense 3D scanner will be used to obtain data. Data will be taken by comparing significant scans of the sediments before and after the simulations. In the future, beach erosion will become the biggest issue coastal nations will face do to sea level rise. Coastal countries like the Republic of Maldives are taking erosion very seriously as their very existence is being threatened.

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