Banded Application of GeoJute® Barriers to a Representative Area in Guam's Pago Watershed

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Abstract

Coral reefs around Guam are faced with multiple threats including soil erosion and sedimentation. In several of Guam's southern watersheds, infertile soil upland has significantly deterred the growth of erosion-mitigating vegetation. Additionally, sediments that wash down to sea reduce the ability of coral reefs to thrive. The need to ameliorate the ecosystem decline related to erosion and sedimentation is particularly patent and pertinent in Pago Watershed. To inform restoration efforts, this research will identify the efficiency of GeoJute® barriers as a method of erosion control. Factoring cost, labor, and effectiveness in containing sediment, GeoJute® barriers are hypothesized as a practical and sustainable method.

A representative area measuring 100-by-50 ft. will be used to conduct the research including a control area at the center. To the left of the control, 1 GeoJute® barrier measuring 20 ft. long will be implemented at every 10-feet vertical marker going up slope. Sediment buildup at each barrier will be used to gauge erosion control. The cost and labor needed to initiate and maintain the treatment will be calculated to evaluate the barrier's practicality as a restoration method.

GeoJute® barriers should be effective in trapping sediments that wash down slope. The labor in starting and maintaining the 40-by-50 ft. treatment area should only require a workforce of 1 person ranging from 30-240 minutes of labor and monitoring a day

Keywords

Sedimentation; Erosion; GeoJute®; Guam Pago Watershed

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ABSTRACT

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