PRODUCTION, DECOMPOSITION, AND HETEROTROPHIC UTILIZATION OF THE SEAGRASS *HALOPHILA DECIPIENS* IN A SUBMARINE CANYON

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We examined the net production, decomposition, and microbial utilization of the seagrass *Halophila decipiens* during a 6.5 d period in May 1985 in the Salt River Canyon, St. Croix, US Virgin Islands. *H. decipiens* covered 37% of the Canyon floor between depths of 14 and 32 m with a biomass of 9.15 g dry wt m^{-2}; its net productivity was ca 0.145 g C m^{-2} d^{-1}. Turnover time, estimated by 2 independent methods, was 10.7 d. After 6.5 d *H. decipiens* incubated in litterbags buried in the sediment lost 56% of their original ash free dry weight (AFDW) while litterbags incubated on the sediment surface lost only 28% of their original AFDW. Bacteria grew rapidly on the detritus, doubling in 3.1 d in the

surface bags and 3.7 d in the buried bags. Per-cell thymidine incorporation rates peaked within the first 13 h in both treatments but declined thereafter. Final incorporation rates were highest in surface bags. Mean bacterial cell size and bacterial abundance associated with degrading H. decipiens were larger in the buried litterbags. Bacterial biomass, however, was only 29.3 mg cell C g^{-1} AFDW in buried bags and 17.5 mg C g^{-1} AFDW in surface bags. Using bacterial production averaged for the 6.5 d, we estimate that only about 0.26% of the daily detrital input from *H. decipiens* is converted daily into bacterial biomass attached to the degrading plant material. We conclude that, unless the bacterial community on *H. decipiens* detritus were to use the organic matter more efficiently and were heavily grazed upon, attached bacteria would not make a significant contribution to a deposit-feeding detritivore's energy demands.