

**FLORIDA SEA GRANT COLLEGE**ABSTRACT

TITLE: EFFECTS OF TURBIDITY ON THE PHOTOSYNTHESIS AND RESPIRATION OF TWO SOUTH FLORIDA REEF CORAL SPECIES

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The photosynthetic and respiratory responses of two scleractinian coral species from Florida, *Dichocoenia stokesii* and *Meandrina meandrites* were examined in vitro under conditions of elevated turbidity for up to 3 weeks. Turbidity ranges of 7-9, 14-16 and 28-30 NTU were tested and compared to controls at 0-2 NTU. The highest range corresponds with the maximum allowed during construction in Florida coastal waters. No differences were found between control and the 7-9 NTU groups. However, both species exhibited significant changes in P:R ratio after 2-3 days in both the 14-16 and the 28-30 NTU ranges compared to controls. Mucus production was clearly evident in the higher turbidity ranges. Exposure to 28-30 NTU depressed the P:R ratio to below 1.0, a level that was maintained for the 21-day duration of the experiments. Light was never less than the saturation value of either species, and no change in light quality was observed as a function of turbidity. Since no significant differences were observed in gross photosynthetic oxygen production among any of the treatment or control groups, the turbidity-related change observed in the P:R ratio appears due to increased respiration, rather than decreased photosynthesis. These results suggest that adherence to turbidity-related water quality standards as presently defined in Florida, may result in short term stress and long term decline in at least some coral species.