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RESEARCH REPORTS

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Title: Pond bottom soil respiration during fallow and culture periods in heavily-fertilized tropical fish ponds

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Abstract: Benthic respiration in two fish culture ponds at Comayagua, Honduras, was below 1 g CO₂/m² per day during culture periods. When ponds were drained for fish harvest, bottom soils were exposed to the air, and soil respiration rates as high as 10 g CO₂/m² per day were recorded. High rates of soil respiration following removal of saturated conditions declined as labile organic matter was consumed and soil moisture content declined. Laboratory studies showed that the moisture content for greatest soil respiration was near saturation, and either drying soils or completely saturating them drastically reduced respiration. Although soil respiration rates were much greater during the fallow period than during the culture period, more organic matter was decomposed during the culture period because it was much longer (5 months) than the fallow periods (2 weeks).

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