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Dietary Phosphorus Requirement of Juvenile Striped Bass *Morone saxatilis*[1]

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Abstract

Three experiments were performed in single-pass, flow-through systems to determine the dietary phosphorus requirement of striped bass *Morone saxatilis*. In Experiment 1, three semi-purified diets were formulated to contain 0.20, 0.40, or 0.60% total phosphorus (entirely from animal protein) and were fed to striped bass having an average initial weight of 321 g. After 14 wk of feeding, significant differences in bone and scale mineralization were found among treatment groups. At a level of 0.40% dietary phosphorus there was a significant improvement of serum calcium (Ca) and tissue mineralization. In Experiment 2, five diets were formulated with graded levels of monopotassium phosphate to yield total phosphorus levels of 0.15 (no P supplementation), 0.35, 0.55, 0.75, and 0.95% and fed to juvenile striped bass initially weighing an average of 7.9 g. After 6 wk, significant improvement in scale and vertebral mineralization occurred when fish were fed diets containing at least 0.55% phosphorus. Improvements were observed in growth, serum phosphorus, incidence of scoliosis, survival, and feed efficiency when the diet contained at least 0.35% P. In Experiment 3, the dietary phosphorus levels fed were 0.30, 0.38, 0.46, 0.54, and 0.62% total phosphorus using graded levels of monopotassium phosphate. Diets were fed to striped bass fingerlings initially weighing an average of 48 g. After 10 wk, significant improvement in scale, vertebral, and dorsal fin mineralization was observed when dietary phosphorus was at least 0.46%. A summary of the broken-line regression analyses of the data from these experiments indicated that the average total dietary phosphorus level required for optimal growth and mineralization of striped bass was 0.58%.