Title: Quantifying the effects of supplemental pellet feeding and threadfin shad in recreational fishing ponds using stable isotope analysis

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Abstract: Pond enhancements are commonly used to increase fish production or enhance angling opportunities, but their effects are often not evaluated. We used stable isotope analysis to estimate the contribution of different rations of pellet feed to bluegill (Lepomis macrochirus) reproduction and ultimately to largemouth bass (Micropterus salmoides) growth in both the presence and absence of threadfin shad (Dorosoma petenense). We used two approaches: a controlled small pond experiment and sampling of established ponds. We stocked 10 0.1-ha ponds with bluegill and largemouth bass in February of 2012, and fed them one of five feed rations (0, 1.3, 1.9, 3.2, and 4.4 kg – ha⁻¹ d⁻¹). Ponds were sampled through the summer and harvested in August. We also sampled 9 established ponds, 3 with neither threadfin shad or pellet feed, 3 that received only pellet feed, and 3 that received pellet feed and contained threadfin shad. As expected, bluegill growth increased with increasing feed rations, while largemouth bass growth and bluegill reproduction showed similar trends. Stable isotope results indicate that the nitrogen isotopic signatures showed clear separation among trophic levels, and pellet feed contributed to the carbon isotopic signatures of bluegill and largemouth bass across feed rations independent of threadfin shad presence.