LEGACY HERBICIDES IN LAKE SEDIMENTS ARE NOT PREVENTING THE GROWTH OF SUBMERSED AQUATIC PLANTS IN LAKE ISTOKPOGA

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Stakeholders concerned about the lack of submersed aquatic vegetation (SAV, primarily Hydrilla verticillata) in Lake Istokpoga have hypothesized that legacy herbicides in sediments were the possible cause of reduced SAV growth in the lake for the last three years. Bioassay experiments were conducted using sediments collected from nine stations located around Lake Istokpoga in areas identified by stakeholders where hydrilla had previously grown. These were compared to sediments collected from three stations in Lake Tohopekaliga where hydrilla was currently growing. Tomato seeds germinated in sediments from all stations in both lakes and control soils. Bareroot tomato transplants (3.8 cm tall) planted in sediments from both lakes continued to grow and when harvested plant dry weights were similar to transplants planted in two control soils (pure sand and 1:1 ratio potting soil and sand). Hydrilla tubers were also planted in sediments collected from three stations in both lakes and control soils. Tubers germinated in sediments from both lakes and control soils and percent germination was not significantly different between lake sediments and control soils. Sediment samples from all nine stations in Lake Istokpoga were sent to laboratories for chemical analyses of the nine aquatic herbicides used in Lake Istokpoga over the last ten years and all results were “non-detect”. Sixty cores were collected from areas with a history of hydrilla growth in Lake Istokpoga and no hydrilla tubers were collected suggesting little or no propagules are present for resumed growth of this SAV. Bioassays and sediment analyses indicate that legacy herbicides are not the cause of decreased abundance of submersed aquatic vegetation in Lake Istokpoga.