

## PHYSICAL CONTROL OF EURASIAN WATERMILFOIL IN AN OLIGOTROPHIC LAKE

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**Abstract:** The introduction of Eurasian watermilfoil (*Myriophyllum spicatum*) into oligotrophic waters of high water clarity in temperate zones of North America has produced growth in excess of 6 m depth and yearly biomass approaching 1000 g m<sup>-2</sup> dry weight. From its initial observation in Lake George, New York, USA in 1985, by 1993 milfoil had spread to 106 discrete locations within the lake. A 7-year study of one site having no management showed milfoil to grow expansively, suppressing native plant species from 20 in 1987 to 6 in 1993 with the average number of species m<sup>-2</sup> quadrat declining from 5.5 in 1987 to less than 2 in 1993. Management of milfoil by means of hand harvesting, suction harvesting and benthic barrier has reduced the number of unmanaged sites from 106 in 1993 to 11. One year post-treatment at sites utilizing suction harvesting, showed a greater number of native species at all sites than pretreatment with a substantial reduction in milfoil biomass. At sites where benthic barrier was removed 1–2 years after installation, milfoil had recolonized 44% of grid squares within 30 days. Ninety days after barrier removal 74% of grid squares contained milfoil and one year later 71% of the grids supported milfoil. During the first year following mat removal, the average number of species m<sup>-2</sup> peaked at 4.7 and stabilized at 4.5 during the second year. Hand harvesting by SCUBA in areas of limited milfoil growth (new sites of infestation and sites of former treatment) was found to reduce the number of milfoil plants present in subsequent years. Hand harvesting did not eliminate milfoil at any of the sites and regrowth/colonization necessitated reharvesting every 3 or more years. Results of evaluations of physical plant management techniques indicate that (1) an integrated program utilizing different techniques based on plant density reduced the growth of milfoil and (2) long term commitment to aquatic plant management is necessary since none of the techniques employed singly were found to eliminate milfoil.

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