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Date: February 19, 2003

To: Nathaniel Stevens; Chairman, Arlington Conservation Commission

From: Gerald Smith; President/Aquatic Biologist

Re: Mechanical Harvesting of Nuisance Aquatic Vegetation (*Trapa natans*) at Arlington Reservoir – Program Review and Recommendations for 2003

Following our recent conversation, I have put together a summary for the mechanical harvesting program performed at the Res over the past three years. This program began in 2000 with harvesting of approximately 6 acres of chestnut in the Arlington (only) portion of the pond. No harvesting work was performed in that area of the pond that lies in Lexington since Lexington had yet to issue a permit allowing the work to proceed. Another estimated 8 acres of chestnut was estimated to lie wholly within Lexington. The total cost for the work we performed in 2000 was \$9,825.

In 2001, the entire area of chestnut (~14 acres out of the 27 acre Res) was harvested from both the Arlington and Lexington portions of the pond. An estimated 2,711 cubic yards and 406 tons of plant material were removed during these operations. The total cost of the harvesting was \$23,500.

Last summer, we began to see a marked reduction in the overall density of the water chestnut throughout the Res. A total of 152 harvester loads with an estimated biomass of 1292 cubic yards and 194 tons were harvested and hauled from the Res. The total cost of the work in 2002 was sharply reduced to \$14,880.

We anticipate a further reduction in chestnut density and program costs this year but we cannot be certain of this, since every biological system is different. We recommend again budgeting \$15,000 but are optimistic the actual cost will be somewhat less.

When we began this harvesting program at the Res, we were candid with the Commission and Town that achieving a long-term reduction in the water chestnut infestation would require a sustained, multiple year effort. Similar harvesting of water chestnut in the nearby Charles River Lakes District has been a tremendous success. Following approximately five years of sustained harvesting there, the program cost went from a maximum of about \$150,000 to currently less than \$10,000 annually for some limited manual, hand-pulling of widely scattered plant growth. Over the past two years, we have not had to do any harvesting within the main portion of the River. **Repetitively harvesting water chestnut before it produces and drops mature seeds has proven to be an effective long-term strategy to effectively manage if not eradicate this invasive plant.** If no harvesting is performed at the Res in 2003, we expect the gains made will be lost and the density of chestnut will again soon rebound to pre-harvesting levels. Unmanaged growth of water chestnut severely degrades aquatic habitats due to oxygen loss, accelerated sedimentation (filling-in) from decomposing plants and may alter water chemistry. Without management and controlling the water chestnut in the Res, fishing is nearly impossible and the habitat for fish and a host of wildlife species will either be lost or greatly impaired. We strongly encourage the program's continuance.