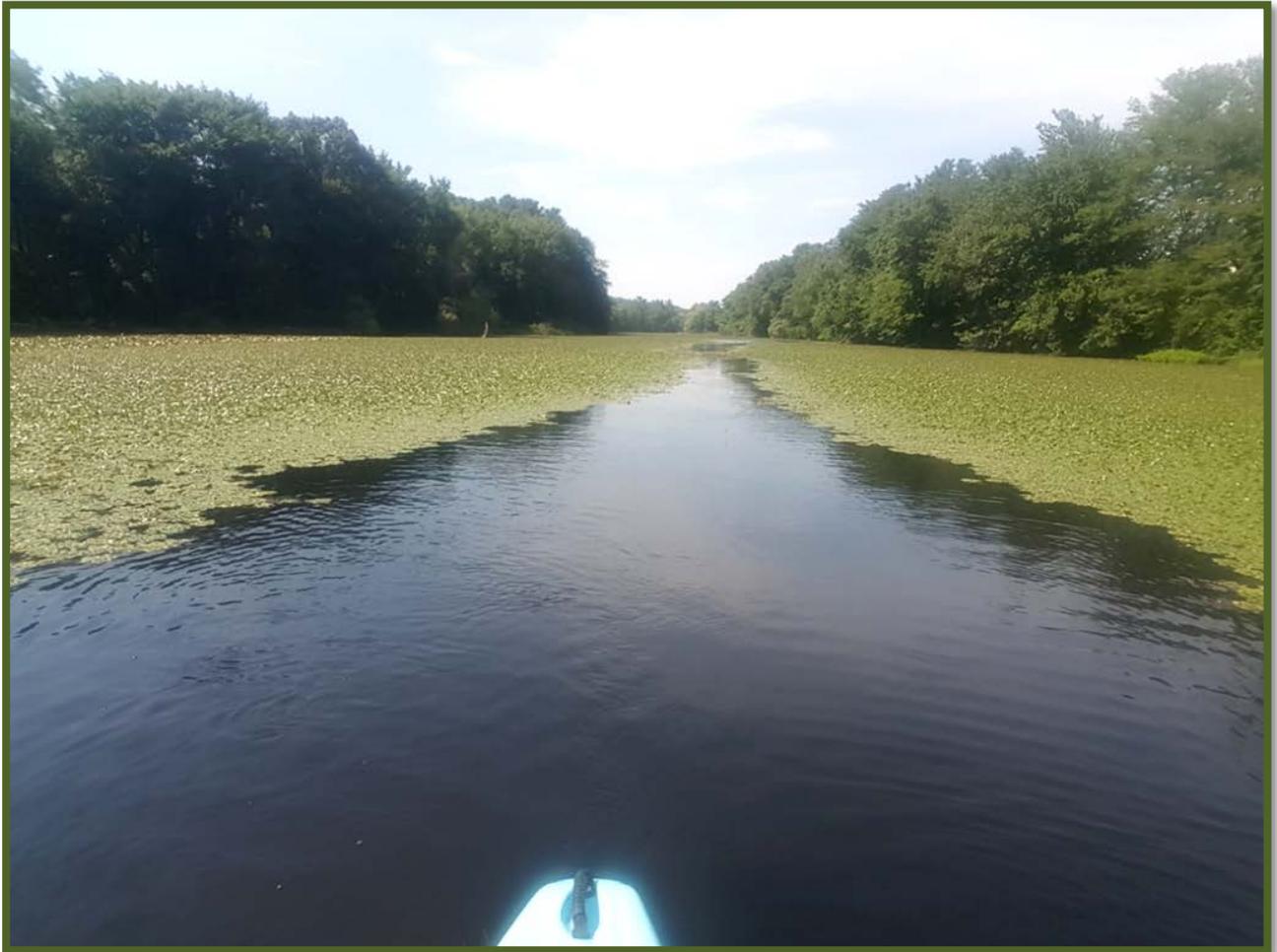


WATER CHESTNUT MANAGEMENT GUIDANCE & FIVE-YEAR MANAGEMENT PLAN FOR THE SUDBURY, ASSABET, AND CONCORD RIVER WATERSHED

FEBRUARY 2017



FOR THE ASSABET SUDBURY & CONCORD RIVERS

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This work was prepared by OARS staff Suzanne Flint, Alison Field-Juma, and Jessica Furbeck and any errors or omissions are OARS’ responsibility. The Guidance is intended as a living document and we will endeavor to keep it up-to-date with the help of its readers and users.

EXECUTIVE SUMMARY

Lakes, ponds and rivers across the Commonwealth of Massachusetts are being choked by invasive water chestnut (*Trapa natans*). The result is degraded ecology and habitat value, loss of recreational value, and the high cost of control efforts. It can be challenging to figure out how to effectively manage water chestnut due to a lack of life-cycle information, diverse approaches to permitting, cost, and evolving control methods. This Guidance provides the latest research and management experience compiled for Conservation Commissions, communities, researchers and other stakeholders to use in developing effective management approaches and plans. The document reviews the control options and permitting needs for each option and provides model language for permitting under the Wetlands Protection Act for use by both applicants and Commissions. It includes a 5-year Water Chestnut Management Plan for the Sudbury, Assabet and Concord watershed, and extensive references. It is intended to be a living a document.

WATER CHESTNUT MANAGEMENT PLAN

GOALS

Vision: a watershed with a healthy, diverse, and resilient ecosystem. The overall goals for managing water chestnut in the Sudbury, Assabet, and Concord River watershed (SuAsCo) are to reduce existing populations of water chestnut to levels that can be controlled with minimal effort, prevent re-infestation in managed sections, and to prevent the establishment of infestations in new areas. To work toward these goals, we propose the following objectives and actions over the next five years. Implementation will depend on funding and leadership.

ACTION PLAN

OBJECTIVE 1. ESTABLISH A WATERSHED-WIDE WATER CHESTNUT TASK FORCE

Establish a Water Chestnut Task Force under the SuAsCo CISMA to oversee implementation of this management plan. The Task Force would initially consist of members already involved in water chestnut management in the watershed: US Fish and Wildlife Service, Town of Concord, Town of Lincoln, Town of Framingham, Town of Acton, Concord Land Conservation Trust, OARS, Wayland Surface Water Quality Committee, and Hop Brook Protection Association.

- Recruit additional members from other watershed towns, state and local agencies, and lake/pond associations.
- The Task Force would meet twice a year to
 - coordinate management efforts taken on by various stakeholders in the watershed,
 - update the watershed-wide information (see Table 4),
 - encourage monitoring and logistical support from towns,
 - share updates on control techniques, research, and funding sources, and
 - collaborate on outreach and education materials and efforts (Objectives 2–4)
- Every five years or more frequently if needed, the Task Force should review and revise this Management Plan to adapt its methods and recommendations to changes in field conditions, including the effects of ongoing management, and any new research or management options.
- The Task Force may be the organizing body to apply for funding for regional planning and implementation, leveraging the water chestnut management strategy outlined here.

OBJECTIVE 2: ESTABLISH WATERSHED-WIDE MONITORING & REPORTING

Develop a watershed-wide water chestnut monitoring and reporting system to provide current plant distribution information for control program planning and evaluation, and to provide early detection of new infestations.

- Seek funding to update mainstem river surveys of existing infestations periodically in early summer (before management) to monitor changes: progress in management, potential spread at the margins of existing infestations, and the development of new infestations. OARS conducted water chestnut surveys of the mainstem Sudbury, Assabet, and Concord Rivers in 2013, 2014, and 2016. Maps from the 2016 assessment are available in Appendix III and on-line.
- Work with Conservation Commissions (or other appropriate organizations) to develop a town-based program to monitor water chestnut populations in the upper sections of the mainstem rivers (not covered by the update of the mainstem mapping), tributaries and ponds. Conduct monitoring training for Commissions and other stakeholders.
- Create or contribute to a web-based reporting system (within or linked to the SuAsCo CISMA website) for water chestnut in the watershed. Assess the feasibility of contributing to and using the state-wide invasive species database being developed by Dr. David Wong for Mass. DEP. Integrate mainstem surveys and town-based surveys for consistent reporting and evaluation.

OBJECTIVE 3: OUTREACH AND LOCAL PARTICIPATION

Encourage local and individual participation by making outreach and education materials available.

- Update the water chestnut information available on CISMA's and OARS' websites: cisma-suasco.org/invasives/Sour-16/WaterChestnut and www.oars3rivers.org/threats/invasive/water-chestnut/.
- Develop water chestnut informational handout for the general public (example of OARS' existing informational postcard tinyurl.com/hhxg5bp). Distribute handout in places that river users are likely to be reached (e.g., local libraries and businesses, visitor centers).
- Facilitate communication with towns and stakeholder groups. Organize meetings with town/city Conservation Commissions or other stakeholder groups to: encourage town-based monitoring (see Obj. 2), encourage direct assistance with transport and disposal of harvested plant material (see Obj. 6), and discuss consistent permitting of control efforts (see Obj. 4).
- Encourage the formation of community watershed committees on the town level.
- Support community and corporate hand-pulling events.
- Provide training and information to individuals and groups who agree to "adopt" a river section or pond to maintain long-term control of water chestnut with annual hand-pulling. Encourage pre- and post-control monitoring and contributing results to the watershed database (Obj. 2).

OBJECTIVE 4: CONSISTENT WETLAND PERMITTING OF CONTROL EFFORTS

Collaborate with the Massachusetts Association of Conservation Commissions (MACC) and other stakeholders to disseminate water chestnut management permitting information and this Guidance.

- Organize meetings with town Conservation Commissions (see Objective 3) to discuss permitting.

- Encourage towns with water chestnut in multiple waterbodies to identify someone (or an organization) to oversee water chestnut pulling in the town and file general permitting (NOI and Conditions) to allow hand-pulling by small groups and individuals under supervision of a coordinator. Any hand pulling would have to follow standard Mass. Lakes and Ponds operating procedures for pulling and disposal.

OBJECTIVE 5: PREVENT AND CONTROL NEW INFESTATIONS

Prioritize management of new or “satellite” patches of water chestnut.

- Monitor water bodies water throughout the watershed for new or expanding populations of water chestnut that could be managed by hand-pulling (Objective 2).
- Post information about preventing the spread of invasive weeds using “Stop Aquatic Hitchhikers” information developed by US Fish and Wildlife Service at high-traffic put-ins (e.g., Lowell Road in Concord, Route 225 in Bedford, White Pond Road in Maynard).
- Hire seasonal employees to staff Rapid Response Team(s) to hand-pull water chestnut on the Sudbury, Assabet, and Concord Rivers.
- Support and encourage municipal and volunteer efforts to control new water chestnut patches in tributaries, lakes and ponds.
- Cross-post calls for volunteers to help with hand-pulling work days throughout the watershed.

OBJECTIVE 6: CONTRIBUTE TO RESEARCH ON EFFECTIVE CONTROLS

Support research on effective biological and chemical control of water chestnut.

- Actively seek grants supporting research on the effects of water chestnut populations on habitat (e.g. macroinvertebrate and fish populations, competition with native plants), and on biological, chemical, and other controls in the watershed.
- Participate, where possible, in research on *Galerucella birmanica* being conducted at the Department of Natural Resources at Cornell University.
- Encourage thorough pre- and post-treatment surveys of areas treated with herbicides or biological controls.
- Communicate research results via websites, newsletters, and newspaper articles.

OBJECTIVE 7: SUPPORT CONTROL MEASURES

Support ongoing water chestnut control efforts, expand control efforts to other areas identified in monitoring, and deploy Rapid Response teams to hand-pull new infestations or satellite populations (those breaking off from large infestations). See Table 4 and maps in Appendix III.

Table 4 (below) is intended to help track the existence and management of populations of water chestnut in the watershed. River sections are listed from upstream to downstream, Assabet River, Sudbury River, Concord River, then ponds.

Table 4: River Sections and Management

Section Description	Access points & distance	Total area (acres)	Est. area WC cover	Management History	Management Actions recommendation	Leadership
A1 Impoundment of the Assabet River, Westborough (335 acres)	Mill Road boat ramp, Westborough	335	Sparse cover across 57 acres	First documented in 2014, hand-pulling 2016	Continue hand-pulling with volunteer & Rapid Response Teams	OARS, Westborough
Assabet River from A1 Imp. to Chapin Rd., Hudson	various		0 acres	None	Monitor	OARS
Assabet River Impoundment, Hudson (22 acres)	Library parking lot canoe put-in, Hudson	22	Sparse cover across 2 acres	First documented in 2012, hand-pulling since 2012	Continue hand-pulling with volunteer teams & Rapid Response Team	OARS, Hudson
Assabet River between Main Street and Cox Street, Hudson (14 acres)	Cox Street canoe put-in, Hudson	14	Sparse cover across 1 acre	Hand-pulling since 2014	Continue hand-pulling with volunteer teams & Rapid Response Team	OARS, Hudson
Assabet River Gleasondale Impoundment, Stow (20 acres)	canoe access Cox Street, Hudson, or Gleasondale Road private access, Stow	20	Sparse cover across 4 acres	Hand-pulling since 2008	Continue hand-pulling with volunteer teams & Rapid Response Team	OARS, Stow
Assabet River between Gleasondale Road and Sudbury Road, Stow (40 acres)	Sudbury Road canoe put-in, Stow	40	Sparse cover across 8 acres	Hand-pulling since 2008	Continue hand-pulling with volunteer teams & Rapid Response Team	OARS, Stow
Assabet River between Sudbury Road & White Pond Road, Stow/Maynard (incl. Crow Island area) (70 acres)	Private access at Crow Island Air Field, Stow; White Pond Road boat ramp, Maynard	70	Sparse cover over 3 acres	Hand-pulling since 2009	Continue hand-pulling with volunteer teams & Rapid Response Team	OARS, Stow
Assabet River, Ben Smith Impound., Maynard (18 acres)	White Pond Road boat ramp, Maynard	18	Sparse cover over 9 acres	Hand-pulling since 2009	Continue hand-pulling with volunteer teams & Rapid Response Team	OARS, Maynard
Assabet River Powdermill Impoundment, Maynard/Acton	Private access at Powdermill dam, Acton	25	Sparse cover over 13 acres; 3 acres moderate coverage	Hand-pulling since 2015	Continue hand-pulling with volunteer teams & Rapid Response Team	OARS, Maynard and Acton

Assabet River from Rte 62, Acton, to confluence, Concord	Rte 62 canoe put-in, Acton, Pine St., Concord; Lowell Rd. Concord		0 acres	None	Monitor	OARS
Sudbury River Mill Pond, Ashland	Canoe access at Mill Pond Park, Pinehill Rd, Ashland	12	Sparse – moderate cover over 7 acres	None	Initiate hand-pulling effort	OARS, Ashland
Sudbury River, Framingham Res #1	DCR access at Winter St. dam, Framingham	126	70 acres sparse cover, 21 acres moderate cover, 10 acres heavy cover	None	Assess management options (including potential for biological control when available)	Mass. DCR
Sudbury River, Saxonville Impoundment, Framingham	Centennial Ave access, Framingham	39	30 acres heavy cover; 8 acres sparse cover	Hand-pulling in 2015, 2016	Chemical control in 2017 and hand-pulling	Framingham
Sudbury River from Saxonville to Rte 27, Wayland	Little Farms Rd, Framingham canoe access and Rte 20 boat ramp, Wayland	18	8 acres sparse cover; 1 acre moderate cover	None	Hand-pulling and monitor	Framingham? Wayland?
Sudbury River from Rte 27 to Rte 117	Rte 27 boat ramp, Wayland; Sherman Bridge Road, Wayland	158	Sparse cover over 75 acres; 15 acres of moderate to heavy cover	Mechanical harvesting and hand pulling	Continue mechanical harvesting and assess chemical control	US Fish and Wildlife
Sudbury River from Rte 117 to Sudbury Rd., Concord (includes Fairhaven Bay area)	Rte 117 canoe access, Lincoln; Sudbury Road, Sudbury	115	Sparse cover over 41 acres; 4 acres of moderate to heavy coverage	Mechanical harvesting and hand pulling	Continue hand-pulling	Concord Land Conservation Trust, Concord
Sudbury River from Sudbury Rd. to Lowell Rd., Concord	Lowell Road boat ramp, Concord	50	11 acres sparse cover	None	Monitor and hand-pull as needed	
Concord River from Lowell Rd., Concord to Pollard St., Billerica	Lowell Road boat ramp, Concord; Route 225 boat ramp, Bedford		0 acres	None	Monitor	OARS
Concord River, Billerica Impoundment, Billerica	Private access off Faulkner Street, Billerica	16	8 acres heavy cover	None	Assess management options	OARS and Billerica

Concord River, Lowell St., Billerica to Lowell	Muldoon Park, Billerica Street, Lowell		0 acres in 2016	None	Assess management options in conjunction with Billerica Imp.	Billerica, Lowell, OARS
Heard Pond, Wayland	Pelham Island Road, Wayland	90	Sparse cover scattered over 39 acres	Mechanical harvesting from 2003 to 2009; hand-pulling from 2007 to 2016	Continue hand-pulling	Wayland Surface Water Quality Committee
Hop Brook Ponds (Stearns Mill, Carding Mill, Grist Mill ponds), Sudbury	Various access points	99	61 acres moderate/heavy cover; 8 acres sparse cover (some areas not surveyed)	Mechanical harvesting since 2000; hand pulling	Continue mechanical harvesting and assess for chemical treatment	Hop Brook Protection Association
Ice House and Robbins Mill Ponds, Acton			not surveyed	Chemical treatment (1948-), dredging, hand- pulling, and mechanical harvesting	Continue mechanical harvesting as needed and hand-pulling	Acton