

Table of contents

PART I

Overview Lake Identification Inventory of Physical Conditions Rare species and wildlife habitat inventory - Flora - Fauna Wildfife and Fisheries Inventory of structures in or on the water Human use inventory

PART II

Action plan

1) Goals and objectives

2) Priorities

Weed management: harvesting (insert)

3) Other options

PART III

History

PART I

Overview

Baddacook Pond is situated in Groton MA, a town now part of the Squannassit and Petapawag Areas of Critical Environmental Concern (ACECs) since December 11 2002. These ACECs have been designated because of the regionally significant resources they contain within an area covering approximately 63,080 acres. They are located in the towns of Ashby, Ayer, Dunstable, Harvard, Lancaster, Lunenburg, Pepperell, Shirley, Townsend, Tyngsborough and of course Groton which represents the largest area of 18,940 acres.

The ACECs share the Nashua River corridor and its associated physical, biological and cultural resources and history thus making it their central resource feature.

Both ACECs also share threatened and endangered species habitat (30 state-listed rare species in Squannassit and 21 in Petapawag), drinking water resources (public wells and aquifers), farmlands, cold water fisheries, historic districts, archaeological resources, wetland and forest habitats (BioMap Core Habitat represent 46% of Squannassit and 54% of Petapawag) and protected open space.

Public health and enjoyment of recreational waters depend on well functioning natural ecosystems. Through resource management planning for these waters the community will help to preserve and enhance the ecological functions as well as the public enjoyment and quality of life supported by clear water. Baddacook Pond is hydrologically linked to public water supplies in Groton and a significant threat to the public health exists through inappropriate uses.

Lake Identification

Description

The following is the description of Baddacook Pond as it appears in "The geography of Groton" written in 1886 for the use of the members of the Appalachian Mountain Club on their visit to Groton :

Baddacook Pond lies about two miles from the village near Lowell Road. It covers an area of 103 acres and is the largest pond in the town. It is mentioned in the record of James Parker's land under the date July 6, 1666. Outlet for this pond is Baddacook Brook, which flows into Cow Pond.

It could be said that today, in 2008, Baddacook Pond has retained quite a few of the characteristics we read in the historic accounts. It is a natural pond of glacier origin. It is still sparsely built; a fair portion of its shoreline is owned by public or nonprofit entities rather than individuals, thus reinforcing its limited development. The shore is mostly wooded area with the Water department being the most open space and the North East end a large swamp with broken down tree trunks (flooded by beavers). It is located in East Groton, approximately 0.27 miles (0.43 Km) north of Route 40 and

1.82 miles (2.9 Km) West of the Groton – Westford border. It is surrounded by four roads, Lowell road or Rte 40 to its south, Old Dunstable Road along its North East shore, Martin's Pond road along the North West and Hemlock Road to its South West.

Drainage involves in-flow from streams on the west and north-west shore and out-flow to the east through marshy terrain towards Route 40 (Lowell Road) and Whitney Pond.

Size – shown on various maps to be 76 acres (30.75 hectares).

Bathymetry (attached map) –. Depth ~ from 5 to 45 ft. (1.5 m to 14 m.)



Ownership – Great Pond status. Private ownership is limited to the shoreline. Group

management is informal but a number of pond abutters belong to the Groton lakes association. Among its abutters, we notice the Groton Water department, Groton trust and NEFF (New England Forestry Foundation).

Special status – Baddacook supplies water by vertical and horizontal seepage to an aquifer largely to its west and from this source water is pumped around town to those served by the municipal water authority.

Inventory of Physical Conditions

Shoreline vegetation

- Mostly a mix of deciduous and evergreen trees with a stand of reeds and bull rushes at the North end, to the East of the municipal boat ramp. This is dense in places.



Debris and overhangs – There are tree trunks in the water from dead trees here and there. One notable example is the pine tree trunk at the North-East (Wharton plantation) shore that has been half-in, half-out of the water for many years, and is now slowly disintegrating. This tree's demise was at least hastened by informal campers lighting fires

at its base. In the summer this sort of activity occurs often.

Islands and sandbars – there is one small permanent island located about 100 feet (30.5 m.) from the aforementioned outflow on the eastern shore. It is elongated in shape, about 50 feet (15 m.) long by 10-15 feet (3-5 m.) wide. It is called Snake Island. It is covered with scrub and brambles and has one weather beaten looking tree at the end farthest from shore.

There are some other rather strange and repellent features that resemble small islands, but these are not fixed in place. They seem to be made up from clumps of weed and are quite dense, but have been observed to migrate slowly from one place to another. These would be a hazard to a fast powerboat.



Areas of erosion – none are apparent.

Lawns, driveways, culverts, pipes etc. extending to water's edge – the only feature of this type is the Town Landing for boats at the North-West tip of the Pond.



Adjacent roads or bridges – the Town Landing extends down from Martins Pond Road to the Pond. It is an asphalt ramp surface about 100 feet (30 m.) long with ribbed concrete strips laid down in the water. (see photos)



Hydrologic connections – streams, wetlands (see maps attached)





Inventory of structures in or on the water

• **Docks, floats, boat ramps etc.** – referring to the map showing the various shoreline owners, the residences a, b, c, d, e each have a dock.



REF #	Dock (D) &/ or Raft		Assesso	or Map
	Dock	Raft	Мар	Lot #
1	Ν	N	243	33
2	Y	N	242	4
3	Ν	N	243	31
4	Y	Y	126	15
5	Y	Y	242	1,2,3
6	Ν	N	126	8
7	Y	N	242	1
8	Y	Y	233	89
9	Y	Y	233	87
10	Ν	N	233	88
11	Y	N	243	36
12	Ν	N	232	56
13	N	N	243	35
14	N	N	243	34

- **Description of structures** Docks are permanently in place, some are seasonal replaced with an aluminum type which can be pulled out and stored on land over the winter. All these shoreline properties listed above have had a permanent dock in place dating back to 1964 and obviously beyond that time.
- Street addresses and assessors map lot numbers of dock owners see map
- Previously dredged area and disposal locations unknown

Rare species and wildlife habitat inventory

All around the pond, close to the shore, the accumulation of fallen leaves make for a thick muddy bottom and the weeds –particularly invasive Cabomba Caroliniana- are spreading making fishing difficult and swimming hazardous. From a recent survey, we can say that 35/40 % of the pond has been claimed by the weeds and it is steadily becoming worse. Large areas towards the South West show water lilies as well as milfoil. (see detailed inventory for all the aquatic plants - including invasive species- found in Baddacook)

Scientific	Common Name	Initials	2007/08	Frequency
Name				
Alnus rugosa	Speckled Alder			
Brasenia schreberi	Watershield			
Cephaalanthus	Button Bush			
occidentalis				
Ceratophylium	Coontail			
demersum				
Cabomba	Fan wort			
caroliniana				
Decodon	water willow			
verticillatus				
Dulichium	three way sage			
arundinaceum				
Elatine minima	small waterwort			
Eleocharis	Robbin's spike rush			
robbinsil				
Elodea canadensis	Waterweed			
Eriocauton	Pipewort			
septangulare				
Gratiola aurea	Golden hedge			
	hyssop			
Isoetes sp.	quillwort			
Lemna sp.	Duckweed			
Ludwigia palustris	water purslane			
Lythrum	purple loosestrife			

Flora

calicaria	
Myryophyllum	water milfoil
heterophyllum	
Myriophyllum	
tenellum	
Nuphar sp.	yellow water lily
Nymphea odorata	white water lily
Nymphoides	Little floating heart
cordata	
Penthorum	Ditch stonecrop
sedoides	
Polygonum sp.	Smartweed
Pontederia	Pickerelweed
cordata	
Potamogeton	Pondweed
robbinsil	
Potamogeton	Variable pondweed
gramineus	
Potamogeton	Floating leaf
natans	Pondweed
Sagittaria	Arrowhead
latifolia	
Sparganium sp.	Bur-reed
Sphagnum spp.	Sphagnum moss
Typha	Cattail
latifolia	
Utricularia	Flatleaf
intermedia	Bladderwort
Utricularia	Purple
purpurea	Bladderwort
Utricularia	Little floating
radiata	bladderwort
Utricularia	Common
vulgaris	bladderwort
Vallisneria	
americana	wild celery
Viburnum	Northern Arrowood
recognitum	
Wolffia sp.	Watermeal
-	

Fauna

Baddacook Pond is home to a variety of wildlife species

Beavers, muskrats, great blue herons, ducks, ospreys, cormorants, seagulls are among the species living in /around the pond.

Bird's species inventory

Scientific	Commom Name	Initials	2007/08	Frequency
Name				
Ardea herodias	Great blue Heron			
Anas platyrhynchos	Duck (mallard)			
Pandion Haliaetus	Osprey			
Larus occidentalis	Seagull			
??	Cormoran			

Amphibians/reptiles species inventory

Scientific	Commom Name	Initials	2007/08	Frequency
Name				
Rana tigrina	Frog			
?	Water snake			
Chrysemys picta	Painted turtle			
Emydoidea blandingii	Blanding turtle			

Fish species inventory

Scientific	Commom Name	Initials	2007/08	Frequency	
Name					
Micropterus	Largemouth bass				
salmoides					
(Lacepede, 1802)					
Lepomis microchirus	Bluegill				
Rafinesque(1819					
Lepomis gibbosus	Pumpkinseed				
(Linnaeus, 1758)					
Perca flaverscens	Yellow perch				
(Mitchill, 1814)					
Etheostoma fusiform	Swamp darter				
(Girard, 1854)					
Ameiurus catus	White catfish				
(Linnaeus, 1758))					
Ameiurus nebulosus	Brown bullhead				
(Lesueur, 1819)					
Notemigonus	Golden shiner				
crysoleucas					
(Mitchill,1814)					
Esox niger (Lesueur,	Chain pickerel				
1818)					
Anguilla rostrata	American eel				
(Lesueur, 1817)					
Onchorynchus mykiss	Rainbow trout				
(Walbaum, 1792)					
Salmo trutta	Brown trout				
(Linnaeus, 1758)					

Mammal species inventory

Scientific	Commom Name	Initials	2007/08	Frequency
Name				
Castor canadensis	Beaver			
Ondatra zibethicus	Muskrat			
Lutra canadensis.	Otter			
Mustela vison	Mink			
Martes pennanti.	Fishercat			

Mass. Wildlife and Fisheries

A presentation of Baddacook Pond would not be complete without mentioning its relationship with the division of the state wildlife and fisheries. (see documents in the History section of the plan).

Dating back to the sixties, the department of Wildlife and Fisheries has stocked the pond (see document dated 1960)

Human use inventory (see chart)

Types and quantity of boat use -

Boats on the pond range from small kayaks, canoes and the occasional sail boat to power boats up to 20 feet long with engines >100 H.P. On a "busy" day, e.g., holidays, long week-ends there may be as many as 8 - 12 power boats, with half or less than that number of canoes. Very occasionally someone shows up with a jet ski. Others have brought in powerful boats for water skiing. This type of activity has also become rare in recent years. A fair number of fishermen have equipped their boats with electric engines thus reducing the noise nuisance as well as water pollution. This practice needs to be encouraged. Ice fishing is popular during winter season but it brings a couple of issues which will be developed in the section below titled Cumulative impact assessment.

Swimming -

A swimming area known as the "Town Beach, used to be located on the eastern shore just south of the major outflow. However, access to this area is no longer public. Water quality sampling is not performed.

Activity inventory								
Activity	Level	Tend	Comments					
BOATING (POWER)	MED	DECREASING	HEAVY WEED GROWTH					
BOATING (ROWING)	MED	DECREASING	HEAVY WEED GROWTH					
BOATING (KAYAKING)	MED	DECREASING	HEAVY WEED GROWTH					
BOATING (CANOE)	MED	DECREASIN	HEAVY WEED GROWTH					
BOATING (SAIL)	LOW	GDECREASING	HEAVY WEED GROWTH					
JET SKING	LOW	DECREASING	HEAVY WEED GROWTH					
WATER SKIING	LOW	DECREASING	HEAVY WEED GROWTH					
SWIMMING	LOW	DECREASING	HEAVY WEED GROWTH NO BEACH					
FISHING BOAT	HIGH	DECREASING	HEAVY WEED GROWTH					
FISHING SHORE	LOW	DECREASING	HEAVY WEED GROWTH					
FISHING ICE	HIGH	HIGH	VERY POPULAR					
DIVING SNORKLING	NONE	NONE	VISABILITY POOR					
SNOWMOBILING	LOW	FLAT	DEPENDING ON SNOW					
4- WHEELING ON ICE	LOW	INCREASING						
SKATING	LOW	FLAT	ICE CONDITIONS					
SKIING NORDIC	MED	FLAT	DEPENDING ON SNOW					

Individual moorings -

A few rafts and floats are moored (generally about 30-40 feet (9-13 m.) from the shoreline) so as to avoid the growing weeds which make swimming both unpleasant and dangerous.





Fishing access – Public boat ramp

Legal public access

to Baddacook Pond is via the Town Landing. It is not managed.

Water supply areas – see attached map

Water level manipulation practice – none

Local zoning restrictions for structures in the water -

There are no restrictions on the existing structures which have been in place for decades.

Cumulative impact assessment

Issues caused by current use – are principally the introduction of invasive weed species by fisherman who don't clean off their boat hulls.

In the main the ice fishermen behave well, but there are 2 potential problems some of them might precipitate. These are:

Bringing vehicles onto the ice. ATVs are relatively common, and once in a while people

drive pick-up trucks on – when observed truck owners have been told to get off by Groton PD. Any vehicle going through the ice would generate a serious pollution problem.

Ice fishermen regularly light fires on the ice and will often haul substantial logs out of the woods. These don't always get consumed by the fire and are to be seen floating about, semi-submerged. These could become dangerous for inattentive power boat operators. * Estimated increase in number of docks etc. with no ACEC program -0 to 1

• Fragile/endangered species to be protected in/on this pond.

PART II Action Plan

1) Goals and objectives

In writing this RMP (Resource management Plan) for Baddacook Pond we, its abutters, wish to see that it is kept as a healthy body of water for the enjoyment of the community (shore residents and visitors alike) while maintaining the already present strong bio diversity in its waters and on its shores.

Our goals are:

to have safe swimming areas, both public and private, free of entanglement to have navigable waterway channels

to curb the growing speed of invasive aquatic vegetation and ultimately to eradicate these invasive species,

all the while keeping count of native species (plants and animal alike) and monitoring them.

2) Priorities

Weed management : Harvesting

The main issue to ensure such a goal will require to conduct

a) *In depth assessment* of the weed proliferation especially regarding the invasive species (See attached CD containing 2009 Baddacook Pond weed Survey with photographs and locating maps)

present situation:

In the past ten years, there has been a very serious weed invasion (see attached map). Cabomba and milfoil presence has multiplied at an alarming rate from the shallower waters on the edge of the pond to depths of 10/12 feet, impairing and endangering swimmers and boaters.

b) *A review* of the means to stop such a proliferation and/or to eradicate the invasive weeds with the least possible harm to the indigenous flora and fauna may be

separated into long term (aiming at eradication of weeds and better management of eutrophication) and short term goals.

At this time we are not equipped to specify the long term solution, but we do have a short term management strategy aimed at immediate control of weed proliferation to ensure safety of fishermen and swimmers.

Weed harvesting done in collaboration with Groton Lakes association and the Town of Groton has been favored because there is no possibility of a drawdown and the proximity of the town well makes it inadvisable to use chemical treatment without preliminary extensive research and testing.

Permit has been granted (see attached document) for a weed harvesting, process which will be closely documented and monitored.

How it works, description of the process

Using a harvester, the weeds will be cut in very specific areas, following all the recommendations as stipulated in the attached document (name and date of doc.?)

Benefits

There will be an immediate reduction of danger of entanglement for swimmers and fishermen

• Detriments, possible harm to other species, threat to human health The weeds are not eradicated as they grow back and the process must be repeated. There is the danger of fragmentation

> Information documentation as well as sharing experience with users of same technique

Harvesting has been done on Lost Lake (Groton) with some success. The Groton Harvester Committee will be responsible for overseeing the process and managing the use of the harvester.

to insert : Description, make, model of harvester ?

Factors favoring use of this technique

The town of Groton owns a harvester in good running order thanks to many volunteers who maintain it. The Harvester Committee oversees the responsible operation of the machinery.

Turtles and other animals which may be collected with harvested weeds will be carefully picked out and reintroduced into the pond.

Efforts have been made to ensure minimum impact on the Pond (screen at outlets, nets to rake in floating debris, secure dumping site at least 100 feet away from the waters well as an oil spill kit aboard the harvester)

The weeds are harvested before they flower, it limits their power to reproduce by seed.

Performance guidelines, use of diagnostic tools

A record of harvested area, the measure of collected material will be submitted after each collection as well the writing of an annual report to be filed with the Conservation commission.

Possible permits review of local state and federal laws

The permits have been obtained both from the State, the National Heritage foundation and the Groton Conservation Commission (see attached documents with names and dates)

✤ Impacts specific to the Wetlands Protection Act

The restrictions imposed by the National Heritage Foundation insure minimum impact on wildlife.

Cost considerations

The operating of the harvester comes at a minimal cost compared to other mechanical means because the town owns the machine and it is run and maintained by trained volunteers.

The harvested weed material will be collected away from the Pond on private property so this reduces the need for heavy machinery and costly transport for disposal.

c) it would be advisable to conduct tests and perform necessary research to compare mechanical vs. chemical methods for weed control; and suppression. This will be the responsibility of those bodies dictating activities and restrictions, i.e. Groton Conservation Commission, NHF etc.

ATTACHMENT TO WETLANDS PROTECTION ACT ORDER OF CONDITIONS SPECIAL CONDITIONS

#169-1019 Baddacook Pond Weed Harvesting Applicant – William Strickland/Board of Selectmen

FINDINGS: This Order of Conditions is written under and subject to the Massachusetts Wetlands Protection Act M.G.L. Ch. 131 §40, as amended. The proposed work is the thinning of aquatic nuisance vegetation to retard pond and lake eutrophication and improve habitat value by reducing the amount of decaying organic materials in Baddacook Pond.

PLANS: The work shall conform to the following plans and documents, unless otherwise specified in this Order:

- a) Notice of Intent filed by William Strickland on behalf of the Groton Board of Selectmen.
- b) Plan entitled "Weed Problem" showing areas with weed infestations from the shore line out approximately 100 feet.
- c) Plan entitled "Locations for Harvesting" showing boat ramp and deposit site.
- d) Plan entitled "Figure 2" providing water depths in Baddacook Pond.
- e) Photograph entitled "Figure 3" showing typical weed growth around the shore line.
- f) Baddacook Pond Weed Survey, dated May 2009, prepared by Williams Strickland identifying problem weeds and providing photographs of specific areas of weed infestation.

SPECIAL CONDITIONS - Please review the General Conditions on previous pages:

Pre-Construction

- This Order of Conditions regulates activities proposed in the Notice of Intent within the 100-foot Buffer Zone of a resource area, as well as within the Bank and Land Under Water Bodies and Waterways as defined in 310 CMR 10.04 (Definitions) of the Wetlands Protection Act.
- 20. The Conservation Commission must be notified five working days prior to commencement of any activity that would impact the Wetlands Protection Act.
- 21. This Order shall apply to any successor in control or successor in interest of the property described in the Notice of Intent and accompanying plans. Within ten (10) calendar days inclusive of the transfer of ownership of the subject parcel, in whole or in part, including lots or buildings conveyed under individual deeds, the Conservation Commission shall be notified in writing of the name and address of the new owner. Within ten (10) calendar days inclusive of such transfer, a written, notarized affidavit shall be filed with the Conservation Commission by the new owner, stating that he or she has read and understood the Order of Conditions and all terms applicable to the project site and intends to comply with all provisions of the Order.
- 22. Because Baddacook Pond is a Great Pond within the Squannassit Area of Critical Environmental Concern (ACEC) and a state permit from the Natural Heritage & Endangered Species Program was necessary, the applicant is advised to check with staff at the Massachusetts Environmental Policy Act

Office to determine whether it is necessary to file an Environmental Notification Form to proceed with this project.

- 23. Prior to any work on site the Applicant or his agents shall meet with an agent of the Commission on the site to review the proposed work and measures designed to mitigate any impact on wetlands and to ensure that all of the Conditions of this Order are understood.
- 24. The Conservation Commission reserves the right to require erosion control or storm damage prevention controls if deemed necessary.
- 25. This document and the approved plans shall be included in all construction contracts and subcontracts for the proposed work and shall supersede any conflicting contract requirements. It shall also be kept on file at the job site at all times during construction.
- 26. The Baddacook Weed Harvesting Project shall be conducted in accordance with the letter dated April 22, 2009 (attached) from the Division of Fisheries & Wildlife (DFW); a limited summer harvest is allowed in accordance with a second letter dated June 12, 2009 (attached) from DFW.
- 27. The applicant and any agents or contractors shall sign the attached "Acknowledgment of Order of Conditions" and return it to the Conservation Commission prior to the commencement of work.
- 28. Any contractor or volunteer employed to execute the activities within the Buffer Zone and/or Resource Area must be provided with a copy of this Order and thereafter will be held jointly responsible for any violation and the penalties under law for such violation.
- 29. Members and agents of the Conservation Commission have the right to enter and inspect the premises at reasonable hours to evaluate compliance with the conditions stated in this Order and may require the submittal of any data deemed necessary by the Commission for that evaluation.
- 30. By acceptance of this Order, the owners indemnify and hold harmless the Town and its residents for any damage attributable to alterations undertaken on this property pursuant to the Order. Issuance of the Order does not in any way imply or certify that the site or downstream areas will not be subject to flooding, storm damage, or any form of water damage.
- 31. Any changes, additions or omissions, including those due to review by other boards, in the plans identified in Condition #12 above, unless specified otherwise in this Order, shall require the applicant to inquire of the Conservation Commission in writing whether the change is substantial enough to require the filing of a new Notice of Intent. Only those changes

which have no potential adverse impact to the interests of the Act and those which will reduce direct alteration to the resource area will be considered.

During Construction

- 32. All equipment shall be operated and maintained so as to comply with the Wetlands Protection Act, G.L. c. 131, s.40; the Town of Groton Wetlands Protection By-Law, and this Order of Conditions. Hazardous materials, including but not limited to gasoline, motor oil, hydraulic fluid, etc. shall not be stored on the weed harvester during the project nor shall the harvester be serviced within 100 feet of wetlands. Care shall be taken in handling these materials at all times, and suitable oil containment system shall be kept on hand for emergencies.
- 33. To the maximum extent practicable, the applicant shall ensure that harvesting does not disturb lake-bottom sediments. Care shall be taken to limit turbidity within the water column. To this end, harvesting activities shall be conducted no closer than ten feet from the shore line.
- 34. All vegetative debris harvested from the Pond shall be removed to an upland area more than 100 feet from the Pond or any wetland area.
- 35. Prior to implementing subsequent harvests, the applicant shall submit an analysis of the effectiveness of the prior year's harvesting efforts and provide specifics (mapping) on what areas are to be harvested in 2010 2012. This monitoring report shall include written records as to the number and type of fish, turtles, and invertebrates captured in the harvested materials.
- 36. All disturbed areas located within wetland resource areas which are to be only temporarily disturbed during the project shall be restored to their original grade, soil profile, and vegetative cover. The area must be 75% re-vegetated with species similar to those disturbed within two growing seasons.

Post Construction

- 37. All disturbed areas shall be loamed, seeded and properly stabilized. Disturbed areas shall be mulched with loose salt marsh hay or straw until vegetation is established. Any plantings shall be native, non-invasive species.
- 38. If invasive, non-native plant species including, but not limited to, purple loosestrife, common and glossy buckthorn, multiflora rose, reed canary grass, honeysuckles, or Asiatic bittersweet become established within the

off-loading area as a result of this project, the applicant shall be required to submit, for prior Conservation Commission approval, and to implement an eradication plan for the removal of these species.

- 39. This Order is in effect for three years following the issuance date; the Commission will consider timely extension requests in accordance with the schedule outlined in the DFW letters.
- 40. The applicant/representative is encouraged to consider the development of a comprehensive lake management plan that addresses the long term management of Baddacook Pond. The plan could include such strategies as encouraging property owners to reduce phosphorous loading in the Pond, the use of benthic barriers to control weeds in specific swimming areas, and the installation of boat washes to discourage the spread of invasive aquatic weeds.
- 41. To receive a Certificate of Compliance per DEP Condition #11, the applicant shall submit:
 - a. A Request for a Certificate of Compliance (DEP WPA Form 8A).
 - b. A final analysis of the successive years of weed harvesting, including maps and photographs of the Pond.
 - c. A written statement certifying that the work has been completed in compliance with this Order of Conditions and the approved plans referenced herein (or approved revisions). A statement to the effect that the project is "substantially" compliant (or a similar statement) will not be sufficient. Any discrepancies shall be noted.



SECCHI TESTS									
	LOCATION								
DATE	1	2	3	4	5	6	7	8	
8-Oct-08	6	6	6						
22-May-09	9	9	9	8.5	9	8.5	8	9	

3) Other options

1. Mechanical options

i. Drawdown

This is not feasible on Baddacook Pond

ii. Benthic barriers

- ✤ How it works, description of the process
- Benefits immediate and long term results
- Detriments, possible harm to other species, threat to human health
- Information documentation as well as sharing experience with users of same technique
- ✤ Factors favoring use of this technique
- Performance guidelines, use of diagnostic tools
- Possible permits review of local state and federal laws
- ✤ Impacts specific to the Wetlands Protection Act
- Cost considerations

iii. Dredging

- ✤ How it works, description of the process
- Benefits immediate and long term results
- ♦ Detriments, possible harm to other species, threat to human health
- Information documentation as well as sharing experience with users of same technique
- Factors favoring use of this technique
- Performance guidelines, use of diagnostic tools
- Possible permits review of local state and federal laws
- Impacts specific to the Wetlands Protection Act
- Cost considerations

iv. Rototilling

- ✤ How it works, description of the process
- Benefits immediate and long term results
- ✤ Detriments, possible harm to other species, threat to human health
- Information documentation as well as sharing experience with users of same technique
- ✤ Factors favoring use of this technique
- Performance guidelines, use of diagnostic tools
- Possible permits review of local state and federal laws
- Impacts specific to the Wetlands Protection Act

Cost considerations

v. Mechanical harvesting

- ✤ How it works, description of the process
- Benefits immediate and long term results
- ✤ Detriments, possible harm to other species, threat to human health
- Information documentation as well as sharing experience with users of same technique
- ✤ Factors favoring use of this technique
- Performance guidelines, use of diagnostic tools
- Possible permits review of local state and federal laws
- Impacts specific to the Wetlands Protection Act
- Cost considerations

vi. Hand pulling

NOTE: The extend of the weed infestation is such that in considering the size of Baddacook Pond, hand pulling is not a feasible efficient means of reducing and/or eradicating the weed problem.

- ✤ How it works, description of the process
- Benefits immediate and long term results
- ✤ Detriments, possible harm to other species, threat to human health
- Information documentation as well as sharing experience with users of same technique
- Factors favoring use of this technique
- Performance guidelines, use of diagnostic tools
- Possible permits review of local state and federal laws
- Impacts specific to the Wetlands Protection Act
- Cost considerations

2. Chemical options

- diquat
- Other

3. Biological controls

- herbivorous fish and or insect
- 2) submission of a plan of action using the chosen method to obtain funding and/or

volunteer participation

3) Others

New structures

No new structure will be permitted.

Water quality

In order to ensure environmental safety, regular water quality tests should be performed at least yearly by competent authority or if not possible by some lay individuals who will have been trained to execute such a task in the best conditions possible. The water clarity should also be monitored on a regular basis (yearly or more often in case of adverse climatic conditions).

Erosion

Each owner will be responsible to monitor the effect of natural erosion on his/her property and will take all adequate measures to contain it in agreement with the con com. this may include a retaining wall, pulling out of dead trees or dead bushes, getting rid or rebuilding a collapsed structure fallen in the water.

Usage of the pond

Under the weed management program it is necessary to prevent boats carrying weeds on their hulls to enter the pond without having been washed. Note: supervision and implementation of this edict is problematical

Oil pollution

A study to compare the effect of gas powered engine vs. electric motor. Should the engine power be limited?

Winter usage

Small vehicles (ATVs, snowmobiles and the like) are acceptable on the ice but pick-up trucks must not be allowed.

All ice fishermen should refrain from littering (Trash cans at the access ramp) and also should make sure that all fires are completely extinguished and no debris on the ice ? See signage proposed by State gov. about cleaning boats.



PART III HISTORY

One of the earlier mentions of Baddacook Pond appears in the record of James Parker's land under the date July 6, 1666. Later, in Dr Samuel Abott Greeen, Vol. 1 of Groton Historical Series (1886) we can read:

"Baddacook Pond lies about two miles from the village near Lowell Road. It covers an area of 103 acres and is the largest pond in the town. Outlet for this pond is Baddacook Brook, which flows into Cow Pond." In April of 1960, the Commonwealth of Massachusetts, Division of Fisheries and Games gives this general description of the Pond:

"Baddacook Pond is a natural great pond of 76 acres, with maximum and average depths of 48 and 16 feet respectively. it drains into the Merrimack River system and is sparsely settled. the shoreline is generally low, even and lightly wooded and is accessible from Martins pond road via a public right of way owned by the Squannacook Rod and Gun Club. Boat launching facilities are available with a parking area for approximately 12 cars. Two boat liveries with six to eight row boats operates in season. Submerged vegetation surrounds the entire pond extending from shore to 10-15 feet of water."

In April of 1979 we find the following general information regarding Baddacook Pond: This is an attractive, 76 acre pond which is only moderately built up. This is partially because of a large swamp at the northeast end and a town water supply at the other. The beds of water lily, water shield and milfoil located around most of the lake provide tremendous cover for fish. Even thought he Division of Fisheries and Wildlife owns a tarred parking lot and launching ramp sufficient for 12 cars it and the lake are only moderately used".

The following section contains dated and undated documents related to the Wildlife and Fisheries management of the pond stocking.



Trout For Baddacook Pond

The BADDACOOK STORY

by JIM SHEPARD, District Manager

A CTION taken recently by a small sportsmen's club in Middlesex County has not only added another name to our meagre list of great ponds with established right of ways, but may pave the way for similar action by other clubs throughout the state. Baddacook Pond, a 78-acre great pond, located in the town of Groton, was opened up to the public recently through the efforts of the Squannacook Sportsmen's Club.

The club, which is less than a year old, became interested in Baddacook Pond, and found that although it had a potential for trout management, it was not being managed by the state due to a lack of public access. This fact led to a bit of research on the club's part, and they soon found that early Colonial ordinances established the right of all citizens of the Commonwealth to fish or fowl on natural great ponds. However, it was further noted that of the 468 great ponds available for fishing in the state today, approximately 325 are accessible to the public in varying degrees, where roads run next to the water's edge, but only 22 have legally established right of ways. The remainder are accessible only through the graciousness of the riparian landowners.

They found that there are existing legislative procedures for the establishment of right of ways, but again they noted that efforts by other clubs for the establishment of public access had many times resulted in failures. It was felt that the procedure was both cumbersome and time consuming, and the club members believed that some other method could be found that would be more effective and give rapid results.

Thus, adopting the famous quotation "Damn the torpedoes — full speed ahead," the club, under the able leadership of President Peter

MAY-JUNE, 1957



Here it is—a, public right of way obtained through the cooperative effort of a wideawake sportsmen's organization and local landowners, on Baddacook Rond, Groton. It con be done elsewhere!

Left to right, Ford F. Hawley, Douglas H. Gutteridge, Marion Hawley, Jeannette Gutteridge, Peter E. Bertozzi (Squannocook club president), and Miss Susie Shattuck, signing the deed to the right of way to Baddacook. The club now holds the deed, which includes a clause that the property will be kept open for use by citizens of the Commonweolth.

Poge 2



Bertozzi, started looking for land at Baddacook that could be purchased and used for public access. They not only located landowners willing to sell at a reasonable fee, but actually located three civic-minded owners who were willing to give their land to the club for this purpose! Thus, on the evening of February 21st, just a month after work on the project started, members of the Squannacook Club met with Mr. and Mrs. Douglas Gutteridge, Mr. and Mrs. Ford Hawley, and Miss Susie Shattuck to sign the deeds that turned the land over to the club for use as a public right of way.

The Squannacook Club has immediate plans for the newly acquired hand, including improvement of the road, development of a small parking lot and construction of a landing site. The Division of Fisheries and Game stocked the pond with trout during the spring of 1957, as sufficient trout water exists to qualify the pond for trout management.

Future plans for the right of way include a possibility of turning the land over to a suitable state agency, when and if a solution is found to our present right of way problems. (There is a bill in the 1957 legislative session for the study of the right of way problems.) However, in the meantime, the fishing public of the Commonwealth will have another place to wet a line, thanks to the efforts of the Squannacook Sportsmen's Chub.

MASSACHUSETTS WILDLIFE

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apains 13 July 1964

Allacool

mes ... Shepard, Director

Richard Cronin

As per letter enclosed.

I am enclosing the letter that Susie Shattuck sent to you; you left it behind in the station wagon the other day. Another reclaration in Pete Bertozzi stopped in this morning anacook Re

Ind reported that he looked into the situation from variant evidently Susie's letter certainly was more than justified; there has been quite a lot than justified; there has been quite a lot of speed-boating, probably as a result of the easy access. The Club voted to put signs up easy access. The Club voted to put signs up on the right of way stating; "Fishermen Right-of the of-Way Only - Speedboats and Skiers Keep Out".

They are also contacting the Selectmen to have to have Steve Coodwin, a member of the Club, by three del made a Special Officer to enforce this. He lives right in the vicinity of the right-of-way.

Pete talked with Susie Friday, the day of the after the meeting, and told her of the action I have of the Club, but he assured her that he felt of no doubt this would control the right of way, but not alleviate the problem entirely.

Deat to 57 RECEIVED I send in the man that Baddawork " reclained goods" list, how-come ? What "ond in future year? Will the #4 H ntime to stork the ward of how much? ank you for taking the time to anun my passes is subdicting inger queit. I remain, Mr Jecone J. Laper its detail as is some of the mean are not and then O2180 is a listener to get

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while not measure on sample reduct the 28 and at methods to ante

al la sub Received your post card regarding Baddacook Pond, Groton, having been dropped from the "reclaimed" pond list. The reason for this is that we first reclaimed Baddacook Pond back in 1957. At the time of ap-plication of the chemical we encountered so many weeds that we felt a poor job would result. Our fears were well founded, as the lake became re-contaminated in a much shorter period of time than the average reclamation. We decided at this time to put off doing any further reclamations on this pond until a weed control program could be carried out by Public Health or by the township on a private subscription basis. We are in hope that this will take place in the near future.

miled to phil to your attending is We will continue to stock legal size trout in Baddacook, along the same basis which we have been stocking it these past three or four years, which has been somewhere between 1500 and 2000, depending on the year's production at our hatchery, is that Baddatoon is an americ that matil capalleal control in corriging and on the weeds, we will not realize the period of any oping al Sincerely of a region free per se I personally depute one way we appared put and a news relation and offering by free one wheel fine the list.

R /j

RICHARD CRONIN District Manager

Bardacook PA. Troton

oreine in an official and the second second

Mr. Bernard Menovich 12 Winford Way Medford, Mass.

Dear Sire Regarding your letter of October 31st, pertaining

to both Baddacook Pond, Groton, and Long Sought For Pond, Westford, I will endeavor to answer your questions in order of their presentation in your letter.

First: "What has happened to Baddacook, Groton, recently?" As far as I know - nothing; we stocked 1,500 trout in this particular pond in 1964; and again in 1965. There should not have been any change from so-called fishing results prior to its being removed from the reclaimed list versus the period after being reclaimed.

Because of the extreme weed condition, the warm water fish were able to escape reclamation much more readily and thus take over warm water portions of the pond. We will consider checking this particular pond during a summer survey; such a study would show if the weed species of fish have increased to the point where the fish population has deteriorated or not.

We do not stock Baddacook in the fall because we feel that with the amount of bass and other warm water fish, as well as the trout, that the recreational potential is adequate as is.

Regarding your comment as to the advent of the increase in fishing license costs, and its relationship to fishing pressure and giving the fisherman something for his money; I would like to point out that the increase advocated at the present time is primarily to be used for land purchasing. This would include fishermen accesses to streams and ponds, and also hunting lands. The last increase, which took place several years ago, was strictly an inflationary increase, to take care of increased costs, and the public was adequately informed that the particular increase at that time would not provide new services, but would incure that the current services would be carried on.

There is no access, as such, at Long Sought For Pond, Westford, but the Division feels that there is access enough through the launching of car-top boats along the road-way, as well as access through the boat livery, to warrant stocking of the pond. Nothing would make us happier than to have a public access, and we are hopeful that in the near future this can be remedied. Sec Ver

Ordinarily we would have stocked Long-Sought-For, Westford, with a fall stocking, but none of our ponds received any trout this fall because of the extreme drought conditions in our hatcheries, which has limited our carrying capacity for the first time. Hopefully, adequate rainfall next year will again allow our hatcheries to carry the necessary poundage for fall stockings.

Sept a Daight In 1964 Long-Sought-For received 1,500 9-12 inch and 1 Section 2 los 1,000 6-9 inch trout; this included the fall stocking.

In 1965 this same pond received 1,000 9-12 inch and 2012/2012/201 800 6-9 inch trout, and did not receive a fall stocking, as I stated before.

I hope this is the information you desired. BATHER USA

Sincerely yours RICHARD CRONIN District Manager RC/J RUNG CHARGE SAME IN THE THE THE THE

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KALAMAZOO, MICHIGAN

SINCE 1897 - A MANUFACTURER OF FINE FISHING TACKLE

BILL BASNER JC. Stakespoor Representative 18 TEMER ROAD CHECKSFORD, MASS. 04824 Phone: A/C 617 256-0097 WESTFORD, MASS. 04824 WESTFORD, MASS.

Mr. Richard Cronin District Wildlife Manager northeastern Distoriet.

mad.

Dear Sir:

to Baddacook Pord in Groton still classed as a neclained port and when was it that. reclaimed? If it is not Inscripted as a reclaimed trout port, could one legal ice find it? Also, dow the Aquarrauch River below Hanbor Pord, Sanday Pord in Arger, and Forg- Sought - For - Pord in Westford sustain holdover trout populations that one loud fish for throughout the season? I hank you for your kind attention. Sincerely,

Willard J. Basner J, 58 Depot St. Westford, Masr. , 01886 William J. Brone In

TACKLE

29 September, 1966

BILL BASMER

10 HEAT ROAD 5 2 CHITTEROT HASS - 31624 - 1 - 1 - 1 Phone A.C. 111 223-0092

> Willard J. Basner, Jr. 58 Depot street Westford, Mass.

Dear Sir:

To answer some of your questions: Baddacook Pond in Groton was reclaimed in 1957 and unclassified as a reclaimed pond in 1965, because of an extreme weed situation making it impossible to do even a fair reclamation.

All of the rivers and ponus mentioned by you in your letter have carry-over fish. Another pond close by to you that you might consider for fall fishing would be Lake Massapaug in Groton and Tyngsboro and Dunstable.

Hope this is the information you desire.

Sincerely

RICHARD CRONIN Northeast Wildlife Manager

31 December, 19

Bill Tompkins

Hiscellaneous Information

Dick Groninger

The second item I wanted to call to your attention is that the Division has again dragged their feet on having Baddicook Pond temporarily dropped from the reclaimed pond status to allow ice fishing in the winter months. In typical Japanese fashion, we are losing face in this area. I brought this to your attention last year. The problem here is that Baddacook is so weedy that until chemical control is carried out on the weeds, we will not reclaim the pond. We are approximately overdue on a reclamation now, so I personally cannot see why we cannot put out a news release andofficially drop the pond from the list.

I wonder if you noticed in the GLOBE, December 31,1964

I think this ties in with your thoughts that there are

I think this is something that we will probably have to go

an article by which New Hampshire Fish & Game is submitting legislation to increase hunting and fishing licenses to receive an estimated income of \$120,000. I won't go into detail as to some of the increases, but I thought one might be of interest to you:

* Children who are now able to fish without a license until 16 would be required to pay \$1.25 junier license fee between the ages

550,000 unlicensed children fishing in the Commonwealth. I don't know how many of these would fall in this 12 to 15 year class.

after next year or the year after. It might be very interesting for our Division to work closely with the New Hampshire Department and find out some of the arguments and see how much pressure is brought to bear on this section of the proposed increased legislation. We could very well benefit from their experience when we do go after

40

groten Mass May 26 - 1958 Mass. Wild Life. Thought it might interest you to know that a I neightor, fishing Baddacook Tal. (24) caught a good syed Paris ! For all of the demand for our boats, this is the first other than hand I know of This was caught from an dung wharf thagh me are not allamp fishing there while the Groth School are summing But we mahean exception for a nightor at night. We also have difficily

with treepaseers " This pay "Right & Way"! rall Cou I the hat Lucie the case tan Maso



The Commonwealth of Massachusetts

Division of Fisheries and Wildlife

Northeast District Box 86 Acton, Ma. 01720

an. 8, 1985

Mr. Wilfred Boucher, Superintendent Groton Water Department Box 101 Groton, Ma. 01450

Dear Mr. Boucher:

Reference is made to our previous discussion concerning preventing the possibility of an automobile breaking through the ice at Baddacook Pond in Groton.

This Division owns the Public Access parking area and boat ramp on Martin's Pond Road.

The purpose of this letter is to give the Town of Groton permission to place two posts, wire or chain and lock to prevent vehicles from access to Baddacook Pond from ourboat ramp. It is my understanding that the gate will be put at the beginning of the boat ramp so that the parking area will remain available to parking.

I appreciate the opportunity to cooperate with you in this matter. If I can be of further aid please contact me.

Sincerely,

Walter L. Noyt, Jr. District Wildlife Manager

The Squannacook Sportsmen's Club Inc., a duly established Corporation under the laws of the Commonwealth of Massachusetts and having its usual place of business in the Town of Groton, Middlesex County Massachusetts for the consideration of one (\$1.00) dollar paid, does hereby grant to the Commonwealth of Massachusetts through its Division of Fisherics and Game of 100 Cambridge Street, Boston, Suffolk County, -Massachusetts (said Division acting pursuant to the provisions of Section 6 of Chapter 131 G.L. as amended by Chapter 802 Acts of 1967) with WARRANTY COVENANTS two parcels of land in said Town of Groton with frontage on Baddacook Pond, so called, bounded and described as follows: - DR. F. WOODWARD Lewis _ LOFAK. 27A

PARCEL #1

Beginning at a point on Shattuck Street, so called at land now or formerly of Susie H. Shattuck; thence turning and running Southerly one hundred forty (140) feet more or less to said Badacook Pond; thence Easterly by said pond twenty-five (25) feet more or less to land now or formerly of F.F. Hawley et ux; thence turning and running Northerly by land of said Hawley one hundred thirty-six (136) feet more or less to a point on said Shattuck Street; thence Westerly by said street to the point of beginning.

For our right title and interest in the above described reference is made to a deed from Douglas H. Gutteridge to said Grantors recorded in the Middlesex South District Registry of Deeds at Cambridge in Book 8911 Page 64 dated March 4, 1957.

PARCEL #2

9/15/2005 3/15/2005 3/15/2006 4/20/2006 5/11/2006 3/27/2006	4/22/2004 5/10/2004 9/30/2004 3/22/2005 4/28/2005	4/11/2003 5/12/2003 5/30/2003 10/1/2003 3/16/2004	4/5/2002 1/30/2002 5/21/2002 0/9/2002	6/5/2001 0/5/2001 3/1/2002	/18/2001 5/3/2001 /11/2001 /11/2001	113/2000 119/2000 120/2000 5/4/2000	ate 3/6/2000
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The Commonwealth of Massachusetts Division of Fisheries and Game Field Headquarters. Westborn 0581

BADDACOOK POND -; GRUTCH

STOCKED WITH 1000 BOUTHERN CHANNEL CATFIEN (ICTALURUS LACUSTRIS PUNCTATUS) BY DR. WEBBER OF GROTON ASSOCIATES INC. IN LATE SUMMER OF 1970 AS 6 INCH FISH. THE STOCK CAME FROM ARKANSAS. DR WEBBER REPORTED ON 8/2/78 THAT HE HAD HEARD OF A HUNDRED OR MORE BEING CAUGHT UP TO THIS TIME UP TO FIVE POUNDS. ONE PICKED UP IN GILL NETS ON 8/1/78 AT 7+POUNDS AND 24.5+ INCHES.