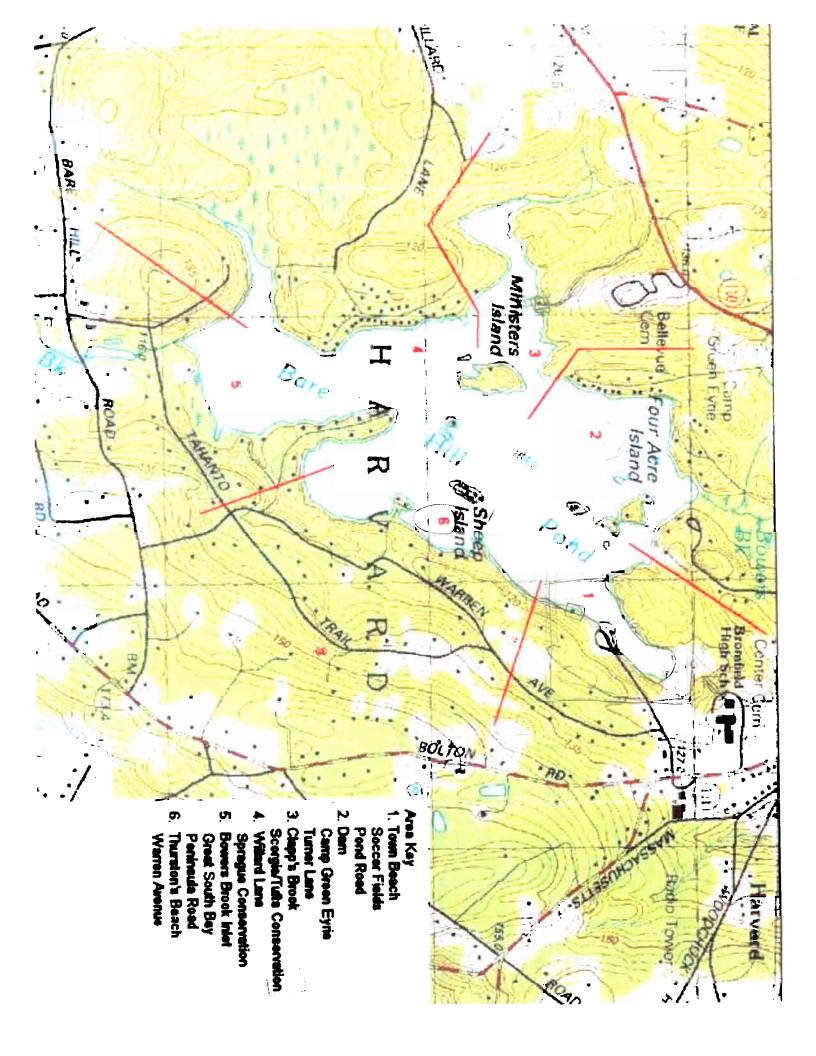


Bare Hill Pond Watershed:

An In-Depth Survey of the Causes of Pollution & Recommendations for Action

Based on 2006 survey by Hannah Nestler and Brittany Flaherty





Bare Hill Pond Watershed Action Plan RECCOMENDATIONS FOR ACTION Based on 2006 survey by Hannah Nestler and Brittany Flaherty

A. Reporting

Section 1 - Soccer Fields, Pond Road, Harvard Town Beach — Waste from fertilizers on soccer fields are seeping into the water. Popular use of town beach contributing pollution via parking lots etc. Sand runoff from Pond Road flows directly into pond.

Section 2 – Turner Lane, Camp Green Erie, Dam – Residential area may contribute excess pollution. Construction in this area is also a subject of concern.

Section 3 – Scorgie Conservation Land & Tufts Conservation Land, Clapp's Brook – Remains of abandoned house that is now demolished and is now a site of pollution and litter.

Section 4 – Willard Lane – Extremely dense housing creating erosion, litter and fertilization pollution. Runoff from roads flows straight into the pond.

Section 5 – Peninsula Road, Great South Bay, Bower's Brook Inlet – Agricultural land adjacent to tributary is most probably directly polluting the pond water. Tahanto Trail, a local road is sanded during the winter, and thus the runoff flows straight to the pond. Excess algae growth was also observed

Section 6 – Thurston's Beach, Warren Avenue – In the Thurston's Beach area, many houses with lush, fertilized lawns very close to shoreline. Also, at Thurston's litter and suspect foam was observed. Houses directly off Warren are not a threat, however runoff that flows down the steep hill slopes may cause problems.

B. Short Term

Goals: To increase homeowner awareness of potential pollution that they may be creating due to their actions.

Actions:

- 1. Landowners should be educated on the danger of phosphorus in lawn fertilizers, and how this substance contributes to excess weed growth and pollution in the pond. Also, concerning roads where runoff seeps directly into the pond, homeowners should understand that motor fuels might also increase phosphorus levels.
- 2. Inform town officials over the concern that any sand or other pollution from local roads flows directly into the pond. This is especially noted at the parking lot of the Town Beach and Willard Lane.
- 3. Also, town officials should be alerted of the potential biohazard site off the Scorgie/Tufts trail. There is an abandoned house that has been demolished; yet not cleaned up. Old chemicals, glass and other dangerous litter were noted.

4. Erosion, in general, is an issue that should be addressed. Because the pond is partially surrounded by steep slopes, development and any other cause of soil disturbance could cause erosion. Awareness of this should be increased.

C. Long Term

Goals: To prevent any further erosion, pollution or damage to the pond, by creating a plan that will decrease or halt any harmful activity. Also, it is necessary to evaluate the current preventative measures being taken to protect the pond, and then improve and update where needed.

Actions:

Section 1 – The area of greatest concern in this section is the Town Beach, where pollution due to human-environment interaction may be increasing phosphorus levels and litter. Town officials should work to remove the lower parking lot, because motor fuel runoff is harmful to wildlife and the pond's general health. If this proves impossible, some type of buffer zone between the parking lot and the water itself should be created. Furthermore, more trash receptacles should be available to decrease the amount of trash in and around the beach area. Animal restrictions should be better enforced in order to prevent animal waste pollution. Some form of a drainage infrastructure should be created in this area in order to reroute runoff from Pond Road and the parking lots. The use of fertilizer on Pond Road Field should also be monitored and prevented from sliding into the marsh and pond. A vegetative buffer zone would be useful in completing this task.

Section 2 – Turner Lane is a residential area that could experience expansion. In the future, homeowners and town officials should monitor where the development is taking place (i.e. how close to the water it is located). During construction, necessary precautions should be taken in order to prevent pollution and/or erosion. Vegetative buffer zones should also be created in front of existing and future homes in order to prevent phosphorus pollution.

Section 3 - A clean up should be planned for the abandoned house located off of the Scorgie/Tufts trail.

Section 4 – Precautions similar to those to be taken for Turner Lane are also necessary for Willard Lane. Vegetative buffers and construction regulations should be implemented as explained above in Section 2. Also observed was a large amount of rusting debris (i.e. pipes and other assorted metal items of litter) that should be cleared away. Town officials should encourage more environmentally friendly behavior on the part of Willard Lane residents.

Section 5 – Off of Tahanto Trail, a small farm is in operation directly beside a stream that flows into Bare Hill Pond. The animal waste and fertilizer that could potentially travel into the pond has the potential to raise phosphorus levels in the pond. To address this issue, the town should plant a vegetative buffer and encourage the homeowner to minimize fertilizer use and be conscious of possible manure pollution.

Section 6 – Once again, homeowners must be wary of their lawn fertilizer usage. Many of the houses along this road are located on steep slopes that lead into the pond. A small amount of trash was found at Thurston's Beach, probably due to the lack of trash receptacles, which should be installed immediately.

D. General Recommendations (in ranking order of priority)

- 1. Landowners and visitors to areas in and surrounding Bare Hill Pond should be informed of various factors that contribute to pollution in the pond:
 - a. Lawn fertilizers
 - b. Motor oils
 - c. Pet waste/manure
 - d. Detergents
 - e. Any form of litter or abandoned debris
 - f. Toxic chemicals
- 2. Seeing as phosphorus is the biggest source of pollution in Bare Hill Pond, preventing and minimizing the pollution factors stated above should be the main focus of any preventive measures.
- 3. Buffer zones should be repaired, replanted, and created.

SURVEYING A LAKE WATERSHED

Data Collection Forms



GUIDANCE FOR COMMUNITY VOLUNTEERS IN MASSACHUSETTS

Data sheets based on materials from

Massachusetts Department of Environmental Protection Massachusetts Riverways Programs, Adopt-A-Stream Program, Department of Fisheries, Wildlife, and Environmental Law Enforcement Massachusetts Water Watch Partnership Maine Department of Environmental Protection

2003

PRE-SURVEY

LAKE and POND WATERSHED FORM

Lake and Watershed Name: BMC Hill Pond Survey Area Name & Number:
Surveyors Names: Hannah Nestlar and Britany Flaherny
A. Description of the Area from a Topographic Map (Maps will be available at the training session.)
1. Consider the developed (white) and undeveloped areas (green) on your map? What % of each do you see? ——————————————————————————————————
2. Are there steep slopes in the <u>sub-watershed</u> , indicating a potential for increased runoff or erosion? (How close together are the <u>contour lines</u> ?)
3. How many tributaries enter or cross your area? 1205 → Bowers Brook, from 2→5
4. What kinds of development are shown on the map? (Include major development in the watershed, as well as the shoreline, that could have an impact on the lake.) B. General Categories of Land Uses in your Area – (From general knowledge) O % Construction O % Agricultural land O % Commercial, Industrial and Urban Areas
40 % Residential
5% Other (please specify, e.g., rural, open, or recreational) educa to mal
C. If Residential (Estimate % of area; information will be available at the training.)
D. Is the area sewered? or unsewered? Do you know of any major discharges to the waterbody or its tributaries? (e.g., permitted, stormwater)
E.) Watershed History and Characteristics What do people know about this area? General description:
Historical information: Originally fond was open field
Problems to look for during site visit: (e.g., If there is a new development near a stream, you will want to look upstream and downstream of the site for evidence of erosion and sedimentation and excessive vegetation in the stream. If you see erosion downstream of the development you may be able to track the problem back to its source.) 1. Canstruction where Old Bramfield any chance of dvarage? Evosion?
2. Cleanliness of Town Brach & Thurston's Beach
3
CONTINUE YOUR SURVEY:
• If your survey section is a near-shore area , continue on to the next page and fill out the near shore area field sheets (the yellow page).
• If your survey section is an upland watershed area , skip the next page and use the upland watershed area field sheets (the orange page).

Lake Watershed Survey Area Summary Sheet 2: Priorities for Action

Surveyor's Names:

Section Name & Number:_

Look back at your data sheets and include your observations. The information from this sheet will be used to develop the Watershed Survey Report and Action Plan.

PROBLEMS: Problems found in your area, such as	ASSETS: Assets found in your area, such as good habitat,	PRIORITIES FOR ACTION: List items from problems/assets columns that you
pipes or culverts discharging in dry weather, erosion, runoff, trash, dense algae, water quality problems (odor, color, oil, foam, sewage), and degraded wetlands (phragmites, loosestrife) (Describe and give location).	wildlife species, businesses, or landowners using the river (in a friendly way), recreational access (canoe, trails, parks), potential recreational access, and potential park/conservation land, scenic views (Describe and give location).	feel need more work.
1.		
•		
2.		2.
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Based	Based on sheets provided by the Massachusetts Riverways Programs/DFWELE	WELE

FIELD SHEETS - NEAR SHORE

C. Site drainage, c			
2. Site runoff is fr			, ,,
Construction:		disturbed areas >1 acre absence/failure of erosion	
Residential:	driveways	lawns (<1 acre	>1 acre)
	lush lawns	exposed soil	evidence of erosion
	pet waste	pipe drains	
Roads:	pavement to catch basin	bridge	shoulders/country drainage
1104401	drainage to waterbody		sand build up in road
	sediment in ditches/culvert		
Agricultural:	field	animal grazing area	manure storage area
1151104104141	exposed soil	animals in waterbody	storage areas uncovered
Commercial,	parking lot	vehicle maintenance yard	•
Industrial	waste storage area		sediment in ditches/culverts
& Urban:	paved areas	trash/waste storage near v	
	-	_	
Logging/	logging yard	roads/trails	stream crossings
Forestry:	forested areas	exposed soil	poor roads
	brush/slash near waterbodi	es	
Other:	(specify)		
I and disturbances	that affect water quality		
Land disturbances	that affect water quality evidence of excess nutrients?	Chack all that apply)	
Soil erosion		sandsoil	stockpiled soil
Erridanea a	f mmoffs rills		
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FIELD SHEETS - NEAR-SHORE

LAKE and POND WATERSHED SURVEY FORM - NEAR SHORE AREA

Lake and Watershed:	Survey D	ate:
Surveyors Names:	Area Nan	ne & Number:
Weather Today:	Weather (past 2-	5 days)
Landowners Contacted During	g surveyyesno	
		urvey Section (Identify the land use category on the site. May be more than one land use.)
70 Consuação	% Agricultural land	•
	% Commercial, Industrial and U	Jrban Areas
/0 100005	% Logging/forestry	
% Other (please specify, e	e.g. , rural, open, or recreational)	
A.1. Specific Land Use on the	Your Survey Section (Estimate % of s	site in each use. May be more than one land use.)
commercial	dirt road	protected open space
industrial	local road	undeveloped land
junk yard	parking lot	meadow
railroad	golf course	forest
bridge	grazing/pasture	wetland
highway	park or beach	other (specify)
A.2. If Residential (Estimate	% of site that is)	
Multifamily	year round	
<1/4 acre lots	seasonal	- · ·
1/2-1 acre lots		
>1 acre (400 x 100 feet)		
Site characteristics Dominant shoreline matering gravelsand Slope of site is	siltclaydark organ	
•	. —	
	•	am, ditch, shoreline, or steep bank on site.)
a)vegetated with exposed roots	. 0)_	unstable and undercut
	ve grasses (< 20 feet)	eroded
trees taller than		eroded
4. Vegetated Cover:		
 Vegetated Cover: a) How much of the near 		hrubs? (estimate shading from 10 AM - 2 PM)
a) How much of the near0-25%	25-50%50-75%	75-100%
a) How much of the near0-25%b) The % of the bank are	25-50%50-75% a that is covered by each of these veg	75-100% getation types is
a) How much of the near0-25% b) The % of the bank are% grasses	25-50%50-75% a that is covered by each of these veg% shrubs % trees (>20	75-100% getation types is 0 feet)% little or none
 a) How much of the near0-25% b) The % of the bank are grasses c) How far back from the 	25-50%50-75% a that is covered by each of these veg% shrubs% trees (>20 e shoreline does the band of trees, shr	75-100% getation types is 0 feet)% little or none rubs, or grasses extend?
a) How much of the near0-25% b) The % of the bank are% grasses c) How far back from the	25-50%50-75% a that is covered by each of these veg% shrubs % trees (>20	75-100% getation types is 0 feet)% little or none
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a) How much of the near0-25% b) The % of the bank are% grasses c) How far back from the0-5 feet C. Site drainage 1. Site runoff is directly to	25-50%50-75% a that is covered by each of these veg% shrubs % trees (>20 e shoreline does the band of trees, shr5-50 feet50-100 feet	75-100% getation types is 0 feet)% little or none rubs, or grasses extend?
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FIELD SHEETS - UPLAND

LAKE & POND WATERSHED SURVEY FORM – UPLAND WATERSHED AREA

	C	
Lake/Watershed:	Survey Date: Area Name & Number:	· · · · · · · · · · · · · · · · · · ·
Surveyors Names:	Weather – past 2-5 days:	
weather roday.	Would past 2.5 days.	
A. General Categories of Land U	May be	land use category on the site. more than one land use.)
/0 CONSTRUCTION	_ % Agricultural land	
/0 10010010101	_ % Commercial, Industrial & Urban Areas	
/0 100000	% Logging/forestry	
% Other (please specify, e	e.g. , rural, open, or recreational)	
A 1 Specific Land Use in Yo	our Survey Section (Estimate % of site in each us	se. May be more than one land use.)
commercial	dirt road	protected open space
industrial	local road	undeveloped land
junk yard	parking lot	meadow
railroad	golf course	forest
bridge	grazing/pasture	wetland
highway	park or beach	other (specify)
A.2. If Residential (Estimate	% of site that is	
	year round	
<1/4 acre lots	seasonal	
1/2-1 acre lots		
>1 acre (400 x 100 feet)		
1. Site runoff is directly tolakestreamditch	_catch basinvegetated bufferwetland	other (describe)
1. Site runoff is directly to lakestreamditch 2. Site runoff from Construction Sites Is there a direct pathway for Do you see: Exposed soil and erosion Alteration to drainage pa Absence orFailure or Evidence of erosion, sucl	runoff to reach the lake, streams or wetlands?	nds.
1. Site runoff is directly to lakestreamditch 2. Site runoff from Construction Sites Is there a direct pathway for Do you see: Exposed soil and erosion Alteration to drainage pa Absence orFailure or Evidence of erosion, sucl Cloudy or discolored war	runoff to reach the lake, streams or wetlands?_ thways or alteration near waterbodies or wetlands ferosion controls, such as silt fences and hay be	nds.
1. Site runoff is directly to lakestreamditch 2. Site runoff from Construction Sites Is there a direct pathway for Do you see: Exposed soil and erosion Alteration to drainage pa Absence orFailure or Evidence of erosion, sucl Cloudy or discolored war Sediment build-up in ditce Construction on overly so	runoff to reach the lake, streams or wetlands?	nds. pales.
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lakestreamditch	thways or alteration near waterbodies or wetlands? thways or alteration near waterbodies or wetlands ferosion controls, such as silt fences and hay be as gullies or rills on the surface of the soil. Her in ditches, streams, wetlands, or lake. Thes, streams, wetlands, or lake. These streams, wetlands, or lake. These slopes. The sound in the field in your narrative & on the surface of the soil.	nds. pales. priority sheet and note on your ma
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1. Site runoff is directly to lakestreamditch 2. Site runoff from Construction Sites Is there a direct pathway for Do you see: Exposed soil and erosion Alteration to drainage pa Absence orFailure or Evidence of erosion, sucl Cloudy or discolored war Sediment build-up in ditce Construction on overly six *Describe most important iss Roads: Is there a direct pathway for Do you see: Absence of vegetation or Roads located on steep six Street drains, storm sewed Full or clogged catch base	thways or alteration near waterbodies or wetlands? thways or alteration near waterbodies or wetland ferosion controls, such as silt fences and hay be as gullies or rills on the surface of the soil. ter in ditches, streams, wetlands, or lake. Thes, streams, wetlands, or lake. These streams, wetlands, or lake. These streams wetlands or lake. The streams of the field in your narrative & on the runoff to reach the lake, streams or wetlands? The buffer between road and waterbody. The lopes. The streams of the lake is the streams of the streams of the streams of the streams of the streams. The streams of the streams. The streams of the streams of the streams of the streams of the streams. The streams of the	nds. pales. priority sheet and note on your map s, lake, or wetland. See Pipe Survey
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1. Site runoff is directly to lakestreamditch	thways or alteration near waterbodies or wetlands? thways or alteration near waterbodies or wetland ferosion controls, such as silt fences and hay be as gullies or rills on the surface of the soil. ter in ditches, streams, wetlands, or lake. The shopes. The shopes wetlands in the field in your narrative & on runoff to reach the lake, streams or wetlands? buffer between road and waterbody. Hopes. The shopes that discharge directly to streams sins? Full with (circle): trash sand pet wains on your map. Or culvert outlets.	nds. pales. priority sheet and note on your map s, lake, or wetland. See Pipe Survey

LAKE & POND WATERSHED SURVEY FORM – UPLAND WATERSHED AREA
C. Site drainage
2. Site runoff from
Roads: continued
Ditch, culvert, or pipe washouts, undercutting, or gullies and rills along sides and bottom of road or ditch.
Exposed soil in ditch channel.
Long ditches without discharge points into vegetated areas.
Erosion around inlets and outlets of culverts.
Washed out or damaged culvert
*Describe most important issues found in the field in your narrative & on priority sheet and note on your maps.
_ college most make the most of the second o
Residential areas:
Is there a direct pathway for runoff to reach the lake, streams or wetlands?
Do you see:
Areas of bare soil.
Turbid (cloudy) water.
Evidence of erosion on driveways or other areas, such as gullies or rills on the surface of the soil, or
sediment accumulation in ditches and streams.
Bank instability—bare soil, slumping, or undercut banks.
Bank histatinty—bare son, simpling, of undercut banksRemoval of vegetation near shoreline, resulting in increased vulnerability to erosion.
Removal of vegetation hear shoreme, resulting in increased vulnerability to erosionAbsence of vegetation or vegetated buffer.
Absence of vegetation or vegetated buffer. Evidence of septic system problems— lawn with green patch, soggy or wet lawn, and/or sewage odor.
Lush lawns.
Pet waste.
Improperly stored trash (e.g., trash barrels or dumpsters) or organic debris (grass clippings, leaves, compost)
near a waterbody.
*Describe most important issues found in the field in your narrative & on priority sheet and note on your maps.
Commercial, Industrial and Urban Areas:
Is there a direct pathway for runoff to reach the lake, streams or wetlands?
Do you see:
Street drains, storm sewers, and pipes that discharge directly to streams, lake, or wetland. See Pipe Survey
Full or clogged catch basins? Full with (circle): trash sand pet waste oil other
*Note problem catch basins on your map.
Damaged or eroded pipe or culvert outletsSediment buildup below pipe or along roadside.
Eroded or undercut banks due to increased stormwater volumes and flows.
Cloudy, discolored, or smelly water in ditches,
Green scum, oily sheen, or floatables on water.
Absence of vegetation or vegetated buffer near waterbody.
Altered and paved areas near waterbodies.
Trash, vehicles, manure, or waste storage near waterbodies.
Lush lawns.
Pet waste problems.
*Describe most important issues found in the field in your narrative & on priority sheet and note on your maps.
Agricultural:
Is there a direct pathway for runoff to reach the lake, streams or wetlands?
Do you see:exposed soillack of vegetated buffer between fields and water body
livestock in waterbody manure storage area not enclosed
Logging / Fowertwee
Logging / Forestry: In there a direct nothway for supply to reach the lake streams or wetlands?
Is there a direct pathway for runoff to reach the lake, streams or wetlands?
Do you see:exposed soileroding roads/trailsclear-cut near waterbody/wetlands
evidence of erosion at stream crossingsturbid (cloudy) water in stream
brush/slash near waterbodies
End of Upland Watershed Area Field Sheets: go to Pipe, Narrative, Priority & Map Pages

Survey Section: 1

Date: November 8, 2005

Surveyors: Brittany Flaherty & Hannah Nestler

Today's weather: clear

Weather over past 24-48 hours: snow showers

Site Description:

surrounding marshland, the Town Beach, and Pond Road. There is rather large expanse of marshland located behind the school, and opportunities for pollution. Pond Road runs alongside the pond, and the area around this parking lot and the town beach is mostly We surveyed the upper east side of Bare Hill Pond, which includes the soccer field behind The Bromfield School, the beside the Pond Road soccer fields. The Town Beach is the biggest recreational area on the pond, and therefore has many undeveloped land and forest.

Problem Areas:

- A) The Town Beach is usually densely populated during the summer, and may therefore experience a great deal of pollution in surrounding the beach. The two parking lots, especially the one that is situated directly beside the pond's shore, may add to phosphorus levels due to motor fuels. This parking lot needs attention if phosphorus levels are to decrease or, at the very a concentrated amount of time due to litter, pet waste, and people who may have detergent on their bathing suits or have applied hair products at a recent time. The abundance of activity may also encourage erosion in the sand and soil least, stabilize. Gasoline pollution may also occur due to motorboats.
- B) The marsh area appeared overall to be extremely healthy, and also has a great forest buffer zone between the Bromfield School and the pond itself. However, we found a few pieces of litter, such as a soda bottle, scattered along the woods beside the marsh.
- C) Pond Road is at a higher level than the pond, and motor fuels would be able to drain down the slope into the pond, thereby causing pollution. There are few houses in this area, decreasing likelihood of fertilizer pollution.
- D) The soccer field is located right beside the marshland, and fertilizers used in the process of its upkeep may travel in certain observed channels directly down to the marsh area, and therefore seep into the pond.

FIELD SHEETS - NEAR-SHORE

LAKE and POND WATERSHED SURVEY FORM - NEAR SHORE AREA

Lake and Watershed: Bave Hill Ponce Survey Date: November & 2005 Surveyors Names: Brittany Flahertry & Hannah Nester Area Name & Number: 1 Two Beace	- Rord
Weather Today: Weather (past 2-5 days) Snow Landowners Contacted During Survey:yes no	
A. General Categories of Land Uses Around and Upstream of Your Survey Section (Identify the land use consister. May be more than	
% Construction % Agricultural land % Residential % Commercial, industrial and Urban Areas % Roads % Logging/forestry	Trying a constant of the const
1 7 % Other (please specify, e.g., rural, open, or recreational) & WOLF & ystem, New Cut	17NQ9+
A.1. Specific Land Use on the Your Survey Section (Estimate % of site in each use, May be more than one 2 to commercial Wairt road Opprotected open space Offindustrial Stocal road Offundeveloped land Offinch yard Survey Section (Estimate % of site in each use, May be more than one 2 to commercial opprotected open space Offindustrial Survey Section (Estimate % of site in each use, May be more than one 2 to commercial opprotected open space Offindustrial open space of the commercial open space ope	tana use.)
Off railroad Off golf course Off forest Off park or beach Off forest Off fore	
A.2. If Residential (Estimate % of site that is) Multifamilyyear round<1/4 acre lotsseasonal1/2-1 acre lots>1 acre (400 x 100 feet)	
B. Site characteristics 1. Dominant shoreline material is gravelsandsiltclaydark organic muck & peatother 2. Slope of site isflatmoderatesteep	en promote de la Principa de la Prin
3. The shoreline or riverbank is (Check a or b, if there is a stream, ditch, shoreline, or steep bank a)vegetated with exposed rootsundercutshrubs and native grasses (< 20 feet)trees taller than 20 feet	on site.)
 4. Vegetated Cover: a) How much of the near-shore water is shaded by trees and shrubs? (estimate shading from 10 AM0-25%75-100% b) The % of the bank area that is covered by each of these vegetation types is % grasses 0% shrubs 0% trees (>20 feet) 35 % little or none c) How far back from the shoreline does the band of trees, shrubs, or grasses extend? 0-5 feet 5-50 feet 50-100 feet greater than 100 feet 	- 2 PM)
C. Site drainage 1. Site runoff is directly to lakestreamditch catch basinvegetated bufferwetland other (describe) Over	e consideration de la cons

FIELD SHEETS - NEAR SHORE

	LAKE and POND WATERSHED SURVEY FORM – NEAR SHORE AREA
C. Site drainage,	
2. Site runoff is t	
Construction:	disturbed areas <1 acre)disturbed areas >1 acreexposed soilaltered drainage pathwaysabsence/failure of erosion controls
Residential:	drivewayslawns (<1 acre>1 acre)lush lawnsexposed soilevidence of erosionpet wastepipe drains
Roads;	pavement to catch basinbridgeshoulders/country drainagesand build up in roadsediment in ditches/culverts/drains
Agricultural:	fieldanimal grazing areamanure storage areaexposed soilanimals in waterbodystorage areas uncovered
Commercial, Industrial & Urban:	
Logging/ Forestry:	logging yardroads/trailsstream crossingsforested areasexposed soilpoor roadspoor roads
Other:	(specify)
Evidence of 2. Do you see Tributaries l Pipes/culver Descri Descri Full catch be	frunoff:
	cerns (Check all that apply, describe the location and cause, and indicate site on map)
✓ Sewage: (od Foam or scu ✓ Fishy odor o ✓ Algae or aqu — Floating tras	ior, milky color, toilet paper) odor, bit o't trush new parch field m: (does a stick break it up? If it does, from is grahahly matural) or fish kill: BUM a rew, we to high levels of phisphovys?. Iatic weeds (excessive growth): all over, etallitety day, to phisphovys?
Other aquation	ish nests, anglers) Identify species if known c life: Vinsects, Vturtles, Vfrogs, Snails, Vmussels, Clams, other: Snacks Identify species if known: herons, Vaucks, Vgeese, loons, other d habitat with wildlife: Describe Wettand 5 Vnalvelaged land
End of Near Shore	Area Field Sheets: Skip the next page, go to Pipe, Narrative, Priority & Map Pages*

Surveyor's Names: Bottany & Hana

Look back at your data sheets and include your observations. The information from this sheet will be used to develop the Watershed Survey Report and Action Plan.

\$ -> consurvation/library ?? As Entirer from Redon's Countiete & piece of work In pand whoth strangut 3) With le vide pecing (Town Beach) 5, rec'neatheral place pour wo much then If animal waste sewage), and degraded wetlands (phragmites quality problems (odor, color, oil, foarn, pipes or culverts discharging in dry weather, 8. Dict evosion 5 account 6. trainfrom people loosestrife) (Describe and give location). erosion, runoff, trash, dense algae, water Problems found in your area, such as

6. Fairly controlled commenced vie - no courseral A. 18ts of wilding in pand/ 3. Albanta 2. Richardly populific 1. pussymillows (tous), butter zore wildlife species, businesses, or landowners using the potential park/conservation land, scenic views river (in a friendly way), recreational access (canoe, trails, parks), potential recreational access, and Assets found in your area, such as good habitat (Describe and give location) good habitat

feel need more work. List items from problems/assets columns that you PRIORITIES FOR ACTION

1. drawnage 2. Distant & bupper zor

agrillother areas whenteverying but next to fond shouthose 6. more transcors 4) Butwe among restricting 5. remove parking Lot from) hurd to solver ban animals or moresund

Based on sheets provided by the Massachusetts Riverways Programs/DFWELE

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Survey Section: 2

Date: November 30, 2005

Surveyors: Hannah Nestler & Brittany Flaherty

Weather Today: Cloudy & Rainy

Weather- past 2-5 days: Cloudy & Rainy

Site Description:

the pond it becomes a dirt road. There are about fifteen houses along the shoreline of the pond, so it is a fairly densely residential area. small beach. The dam is a small culvert, and route 110 runs over. Most of the shoreline is heavily vegetated with trees, expect for the This site encompassed Turner Lane, Camp Green Erie and the dam. Turner Lane is paved for the majority yet once it passes Camp Green Erie is about 45% of this site. There are around 15 buildings that make up its campus, along with a parking lot and a residential areas. The shoreline along those sites is all manicured lawn.

Problem Areas:

- density of this residential area. Is there an ordinance passed restricting the amount of residential development in this area? And A) About 50 feet from the shore of the pond is a septic construction site. There are hay bales placed to presumably provide a However, this is not the only construction being done. A new cabin is being built very near the water, only adding to the buffer for any runoff, and the conclusion is that this septic is within code and thus allowed to be so close to the water. if not, this is an advised measure.
- action is needed to create some sort of solution for this problem. This is definitely a direct contributor to the excess amount of site. Removal of trees means less of buffer preventing harmful substances from the roads and houses from reaching the pond. This includes the areas of lawn, for there is absolutely no buffer zone between the lawns and the pong. Therefore, immediate B) Also, this new construction means that trees are being cut down, and we observed a logging truck sitting in this construction fertilizer and phosphorus in the pond.
- C) Because this is a residential area, there is the possibility that children and pets could contribute waste to the pond. This is another source of phosphorus

FIELD SHEETS - UPLAND

LAKE & POND WATERSHED SURVEY FORM – UPLAND WATERSHED AREA

Lake/Watershed: Dune Will Fain	Survey Date: 11/31	
Surveyors' Names: Kn Hang & You	Survey Date: 11 31 Hannah Area Name & Number Meather – past 2-5 days: 4	Cloudy & rainy
A. General Categories of Land Uses	Ma ₃	the land use category on the site. y be more than one land use.)
10 % Residential 45 25 % Roads Other (please specify, e.g.	 % Agricultural land % Commercial, Industrial & Urban Area % Logging/forestry ., rural, open, or recreational) 	as
A.1. Specific Land Use in Your 45 commercial o industrial o junk yard o railroad s bridge highway	Survey Section (Estimate % of site in each dirt roadlocal roadparking lotogolf courseograzing/pasture	h use. May be more than one land use.) 35_protected open space 35_undeveloped land 0_meadow 35_forest 0_wetland 0_other (specify)
A.2. If Residential (Estimate %	6 of site that is) 8 S year round 15 seasonal	
C. Site drainage 1. Site runoff is directly to Lake stream ditch c	atch basinvegetated bufferwetl	and other (describe)
Do you see:	ways or alteration near waterbodies or we rosion controls, such as silt fences and has gullies or rills on the surface of the soil in ditches, streams, wetlands, or lake. es, streams, wetlands, or lake. ep slopes.	etlands. ay bales.
Do you see: Absence of vegetation or b Roads located on steep slop	noff to reach the lake, streams or wetland uffer between road and waterbody. pes. , and pipes that discharge directly to strea	
Full or clogged catch basin *Note problem catch basin Damaged or eroded pipe of Sediment buildup below pi	s? Full with (circle): trash sand person your map. If culvert outlets. If per or along roadside.	et waste oil other
X_washouts and crumoting p	avement on roads and sidewalks.	

LAKE & POND WATERSHED SURVEY FORM – UPLAND WATERSHED AREA
C. Site drainage
2. Site runoff from
Roads: continued
✓Ditch, culvert, or pipe washouts, undercutting, or gullies and rills along sides and bottom of road or ditch.
Exposed soil in ditch channel.
Long ditches without discharge points into vegetated areas.
Erosion around inlets and outlets of culverts.
Washed out or damaged culvert
*Describe most important issues found in the field in your narrative & on priority sheet and note on your maps.
2 - 55 - 50 - 50 - 50 - 50 - 50 - 50 - 5
Residential areas:
Is there a direct pathway for runoff to reach the lake, streams or wetlands? \(\sim \lambda \omega
Do you see:
Areas of bare soil.
Turbid (cloudy) water.
Evidence of erosion on driveways or other areas, such as gullies or rills on the surface of the soil, or
sediment accumulation in ditches and streams.
Bank instability—bare soil, slumping, or undercut banks.
Removal of vegetation near shoreline, resulting in increased vulnerability to erosion.
✓Absence of vegetation or vegetated buffer.
Evidence of septic system problems— lawn with green patch, soggy or wet lawn, and/or sewage odor.
Lush lawns.
Pet waste.
Ict wasteImproperly stored trash (e.g., trash barrels or dumpsters) or organic debris (grass clippings, leaves, compost)
near a waterbody.
*Describe most important issues found in the field in your narrative & on priority sheet and note on your maps.
Commercial, Industrial and Urban Areas:
Is there a direct pathway for runoff to reach the lake, streams or wetlands?
Do you see:
Street drains, storm sewers, and pipes that discharge directly to streams, lake, or wetland. See Pipe Survey
Full or clogged catch basins? Full with (circle): trash sand pet waste oil other
*Note problem catch basins on your map.
Damaged or eroded pipe or culvert outletsSediment buildup below pipe or along roadside.
Eroded or undercut banks due to increased stormwater volumes and flows.
Cloudy, discolored, or smelly water in ditches,
Croudy, discorded, or shierly water in diches,Green scum, oily sheen, or floatables on water.
Absence of vegetation or vegetated buffer near waterbody.
✓Altered and paved areas near waterbodies.
Trash, vehicles, manure, or waste storage near waterbodies.
Lush lawns.
Pet waste problems.
*Describe most important issues found in the field in your narrative & on priority sheet and note on your maps.
Agricultural:
Is there a direct pathway for runoff to reach the lake, streams or wetlands?
Do you see:exposed soillack of vegetated buffer between fields and water bodylivestock in waterbody manure storage area not enclosed
nvestock in waterbody manure storage area not enclosed
Logging / Forestry:
Is there a direct pathway for runoff to reach the lake, streams or wetlands?
Do you see:exposed soileroding roads/trailsclear-cut near waterbody/wetlands
evidence of erosion at stream crossingsturbid (cloudy) water in stream
brush/slash near waterbodies
End of Upland Watershed Area Field Sheets: go to Pipe, Narrative, Priority & Map Pages

Lake Watershed Survey Area Summary Sheet 2: Priorities for Action

Surveyor's Names: Hannah Nestler & Britzer F. Section Name & Number: Americal C.

Look back at your data sheets and include your observations. The information from this sheet will be used to develop the Watershed Survey Report and Action Plan.

Problems found in your area, such as pool habitat, problems found in your area, such as problems found in your area, such as proper or cutter discharging in dry weather, wildlife species, businesses, or land alones or an area, such as a pipes or cutter discharging in dry weather, wildlife species, businesses, or land alones (cano, much, trash, dense alga, water inver (in a theolow) way, recreational access, and sewage), and degraded wellands (phragmites) potential park-occurration land, scenic views loosestrife) (Describe and give location). **Look for the control of t	PROBLEMS:	ASSETS:	PRIORITIES FOR ACTION:
wildlife species, businesses, or landowners using the river (in a friendly way), recreational access (canoe, trails, parks), potential recreational access, and potential park/conservation land, scenic views (Describe and give location). 1. Leawarks views 2. Lung Green Sing 3. Lung Green Sing 4. Wildlife 5. Jour Chillang	Problems found in your area, such as	Assets found in your area, such as good habitat,	List items from problems/assets columns that you
inver (in a friendly way), recreational access (canoe, trails, parks), potential recreational access, and potential park/conservation land, scenic views (Describe and give location). 1. beauth view (correction). 2. boating richtwh, ere 3. char and cher single. 3. charp and hille. 5. charp and hille. 5. charp and hille.	pipes or culverts discharging in dry weather,	wildlife species, businesses, or landowners using the	feel need more work.
potential park/conservation land, scenic views Describe and give location). 1. Leewhole view & boating recreame, ere 3. Churp Green Eine 24. Wildlife 5. Jour Chelway 6. Jour Chelway	erosion, runoff, trash, dense algae, water	river (in a friendly way), recreational access (canoe,	
1. bearshir ven 2. boating recreation, ere 3. curp Green Eine 2. Jourdlife 5. Jourd historing	sewage), and degraded wetlands (phragmites,	potential park/conservation land, scenic views	
1. beautiful new e boating recreation, ere 3. Curp Green Eine 24. Wildlife 5. Jou de historie	100sesume) (Describe and give rocation).	(Describe and give rotation).	
e boating recreams, ere 3, curp aner Eire 24, wildlife 5, soud history	Construction & contributed	1. begunner very	1. en la le sui l'aing requirement
3, Curp Green Ens 24, Widlife 5, Jos d. Nilway	to copie	g boating recreation, or	Co where hoved conte built
24, widuk E. Jos d. Riway	2.109/21	3. Churc Gron Sing	
24, Miduk E. Jos d. Rimsy	2 Contract Invent		router ross
S. Joseph Milling		24 widif	43, an scentres vorolate and
	\$4. house close to sho re		
ssibility B	J. Sept.C.		
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	earn rave		
	6. Children		
	,)	
		× 1	

Based on sheets provided by the Massachusetts Riverways Programs/DFWELE

Date: <u>January 28, 2006</u>

Survey Section: 3

Surveyors: Brittany Flaherty & Hannah Nestler

Today's weather: clear and sunny

Weather over past 24-48 hours: clear with scattered showers

Site Description:

We surveyed the upper west side of Bare Hill Pond along Route 110, from the Bellevue Cemetery to the paths leads down to various parts of the Scorgie/Tufts conservation land and Clapp's Brook. One main site that we found most problematic was located down a particular trail where an abandoned house had been demolished and left to rot.

Problem Areas:

- downward toward the water. A great deal of vegetation and dense forest definitely act as buffers. If this conservation land A) The conversation land appears healthy and well kept, a lovely habitat for animals. It is far enough away from 110 that we is not respected, however, trash and erosion-causing trails could change the health of this area and therefore, of the pond. do not believe motor fuels or any such highway debris could possibly reach the pond, even though the trails slope
- which should be immediately halted. This area must be cleaned up as soon as possible in order to minimize the damage that lighters. It appears that people have been abusing the privacy of this area, and using it for recreational purposes, an activity include: a refrigerator, a broken chimney with a rusting top, rusting cans and chairs, paint buckets and painted wood, roof shingles, shards of broken glass, a broken typewriter (thrown right beside the pond's edge), and an array of beer cans and B) The area of greatest concern to us was the remnants of an abandoned house that we found at the end of one conservation elements left to infect the soil and the pond. Just a small sample of the damaging wreckage that we encountered would trail. This house appears to have been intentionally demolished, and then allowed to waste, all of its toxic chemical must have already begun on the conservation land.

FIELD SHEETS - UPLAND

LAKE & POND WATERSHED SURVEY FORM – UPLAND WATERSHED AREA

Lake/Watershed: Bave Hill Pand Survey Date: 1/28/06 Surveyors' Names: 3+H Area Name & Number: 3 Weather Today: Clear & Sunny Weather - past 2-5 days: Clear & J & Cattered Showers
A. General Categories of Land Uses in Your Survey Section May be more than one land use.) O % Construction S Residential Nesidential Nesidentia
A.1. Specific Land Use in Your Survey Section (Estimate % of site in each use. May be more than one land use.) commercial co
A.2. If Residential (Estimate % of site that is) Multifamily
C. Site drainage 1. Site runoff is directly to lakestreamditch catch basinvegetated bufferwetland other (describe)
2. Site runoff from Construction Sites Is there a direct pathway for runoff to reach the lake, streams or wetlands? Do you see: Exposed soil and erosion. Alteration to drainage pathways or alteration near waterbodies or wetlands. Absence orFailure of erosion controls, such as silt fences and hay bales. Evidence of erosion, such as gullies or rills on the surface of the soil. Cloudy or discolored water in ditches, streams, wetlands, or lake. Sediment build-up in ditches, streams, wetlands, or lake. Construction on overly steep slopes. *Describe most important issues found in the field in your narrative & on priority sheet and note on your maps.
Roads: Is there a direct pathway for runoff to reach the lake, streams or wetlands? Do you see: Absence of vegetation or buffer between road and waterbody. Roads located on steep slopes. Street drains, storm sewers, and pipes that discharge directly to streams, lake, or wetland. See Pipe Survey Full or clogged catch basins? Full with (circle): trash sand pet waste oil other
*Note problem catch basins on your map. Damaged or eroded pipe or culvert outlets. Sediment buildup below pipe or along roadside. Washouts and crumbling pavement on roads and sidewalks. Over

LAKE & POND WATERSHED SURVEY FORM – UPLAND WATERSHED AREA
C. Site drainage
2. Site runoff from
Roads: continued
Ditch, culvert, or pipe washouts, undercutting, or gullies and rills along sides and bottom of road or ditch.
Exposed soil in ditch channel.
Long ditches without discharge points into vegetated areas.
Erosion around inlets and outlets of culverts.
Washed out or damaged culvert
*Describe most important issues found in the field in your narrative & on priority sheet and note on your maps.
Describe most important issues journa in the field in your martaine et on priority shoet and note on your maps.
Residential areas:
Is there a direct pathway for runoff to reach the lake, streams or wetlands?
Do you see:
Areas of bare soil.
Turbid (cloudy) water.
Evidence of erosion on driveways or other areas, such as gullies or rills on the surface of the soil, or
sediment accumulation in ditches and streams.
Bank instability—bare soil, slumping, or undercut banks.
Removal of vegetation near shoreline, resulting in increased vulnerability to erosion.
Absence of vegetation or vegetated buffer.
Evidence of septic system problems— lawn with green patch, soggy or wet lawn, and/or sewage odor.
Lush lawns.
Pet waste.
Improperly stored trash (e.g., trash barrels or dumpsters) or organic debris (grass clippings, leaves, compost)
near a waterbody.
*Describe most important issues found in the field in your narrative & on priority sheet and note on your maps.
Commoveial Industrial and Iluhan Arass
Is there a direct pathway for runoff to reach the lake, streams or wetlands? NO
Do you goo:
Do you see:Street drains, storm sewers, and pipes that discharge directly to streams, lake, or wetland. See Pipe Survey
Full or clogged catch basins? Full with (circle): trash sand pet waste oil other
*Note problem catch basins on your map. Damaged or eroded pipe or culvert outletsSediment buildup below pipe or along roadside.
Eroded or undercut banks due to increased stormwater volumes and flows.
Cloudy, discolored, or smelly water in ditches,
Green scum, oily sheen, or floatables on water.
Absence of vegetation or vegetated buffer near waterbody.
Altered and paved areas near waterbodies.
Lush lawns.
Pet waste problems.
*Describe most important issues found in the field in your narrative & on priority sheet and note on your maps.
Agricultural:
Is there a direct pathway for runoff to reach the lake, streams or wetlands? No
Do you see:exposed soillack of vegetated buffer between fields and water body
livestock in waterbody manure storage area not enclosed
;
Logging / Forestry:
Is there a direct pathway for runoff to reach the lake, streams or wetlands? NO
Do you see:exposed soileroding roads/trailsclear-cut near waterbody/wetlands
evidence of erosion at stream crossingsturbid (cloudy) water in stream
brush/slash near waterbodies
End of Upland Watershed Area Field Sheets: go to Pipe, Narrative, Priority & Map Pages

Area Summary Sheet 2: Priorities for Action Lake Watershed Survey

Surveyor's Names: 3++

Section Name & Number: 3

Look back at your data sheets and include your observations. The information from this sheet will be used to develop the Watershed Survey Report and Action Plan.

Droblems found in vour area, such as		The state of the s
pipes or culverts discharging in dry weather, erosion, runoff, trash, dense algae, water quality problems (odor, color, oil, foam,	Assets found in your area, such as good habitat, wildlife species, businesses, or landowners using the river (in a friendly way), recreational access (canoe, trails, parks), potential recreational access, and	feel need more work.
sewage), and degraded wetlands (phragmites, loosestrife) (Describe and give location).	potential park/conservation land, scenic views (Describe and give location).	
1. Abundanch hosse ton	1. Mensen	1. Cleans of old howsenewed
Your & left react >	2 Various species medial	
PANTICISED & OTHER	Modedmen	
	to no pariother	3
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3. TRAS H-sherame,		
glass, cheus, typeward		
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Date: <u>January 30, 2005</u>

Survey Section: 4

Surveyors: Hannah Nestler & Brittany Flaherty

Weather Today: clear and warm

Weather- past 2-5 days: Mixture of rain and sun

Site Description:

Site four consists of Willard Lane. The site stretches approximately between Minister's Island and Great South Bay. The lane populated. There is also a small beach located to the left of the end of Willard Lane. Currently, there is some construction going on, is paved from the beginning, yet right along the pond the asphalt has crumbled into rubble. Along the shoreline it is very densely though it is slightly set back from the water. There is also a new septic that was just recently installed.

Problem Areas:

- shore, the houses erode away the soil, especially since there are few trees right next to the shoreline. Without those trees acting something could be done to watch the number of houses built in the future. By developing so close together and so near the not only as a buffer zone, but also as a support for the soil, runoff from open earth, fertilized lawns, and Willard Lane flows A) The extremely dense housing is definitely something that needs to be addressed. Though the houses can not be removed, straight into the pond. This is unhealthy for the watershed.
- Scattered throughout this site is a large amount of debris in the form of rusting cans and pipes along with old appliances just laying about. The danger of this litter is that any chemical residue can flow right into the pond. A large clean- up of this area could remedy this issue, along with increased awareness by the habitants along this lane. â

FIELD SHEETS - NEAR-SHORE

LAKE and POND WATERSHED SURVEY FORM – NEAR SHORE AREA

Lake and Water Surveyors Nam	rshed: Bare Hill Pand les: Britlany Flakers, & Hannah Neitler	Survey Date: <u>January</u> 30, Area Name & Number: 4-Sor	2006 agric Conscination &
Weather Today Landowners Co	les: Britiany Flaterty & Hannah Neitler: Clow + Norm Weatlern was well ontacted During Survey: yes no	her (past 2-5 days) Rain & S	W. Had
A. General Categorie	es of Land Uses Around and Upstream	site M	fy the land use category on the ay be more than one land use.)
√ % Construction 120 % Resident	tial O % Commercial, Indust	trial and Urban Areas	ey oo more man one tana ase.y
<u>¶</u> % Roads ∏o % Other (pi	Logging/forestry lease specify, e.g., rural, open, or recreation	nal) Mosh, rural, (a	nsurvata and
A.1. Specific Lan O commercial	nd Use on the Your Survey Section (Estin	mate % of site in each use. May b	e more than one land use.) ed open space
<u></u> industrial ∆junk yard	local road Oparking lot	~ 13 undevel	loped land
<u>()</u> railroad	<u>O parking for</u>		V
bridge	<u>O</u> grazing/pasture	15 wetland	
highway	park or beach	Oother (sp	pecify)
A.2. If Residentia 3 Multifamily 77<1/4 acre lo 1/2-1 acre lo	ots 45 seasons		
	sandsiltclayc	dark organic muck & peat _	_other
2. Slope of site is	sflatmoderate	<u>✓</u> steep	
a) <u>√</u> vegetate expo _∕_shru	or riverbank is (Check a or b, if there ed with osed roots albs and native grasses (< 20 feet) s taller than 20 feet	e is a stream, ditch, shoreline, b) \(\sqrt{u}\) unstable and undercut \(\sqrt{e}\) eroded	or steep bank on site.)
4. Vegetated Cov a) How much 0-25%	h of the near-shore water is shaded by tr		ng from 10 AM - 2 PM)
	the bank area that is covered by each of	these vegetation types is	
2 % gras c) How far be 0-5 fee	ack from the shoreline does the band of	rees (>20 feet) 23 % little or a trees, shrubs, or grasses extended feetgreater that	d?
C. Site drainage			4
1. Site runoff is di	irectly to	11 00	
ıakestrean	mditch catch basinvegetat	ted buffer wetland other	(describe)
Over			

FIELD SHEETS - NEAR SHORE

	LAKE and POND WATERSI	HED SURVEY FORM – NEA	AR SHORE AREA
C. Site drainage, c			
2. Site runoff is for	rom		
Construction:	disturbed areas <1 acre)altered drainage pathways	disturbed areas >1 acre absence/failure of erosion	exposed soil
Residential:	drivewayslush lawnspet waste	lawns (100% acre exposed soil pipe drains	>1 acre)evidence of erosion
Roads:	pavement to catch basindrainage to waterbodysediment in ditches/culvert	bridge evidence of erosion ss/drains	shoulders/country drainage sand build up in road
Agricultural:	field exposed soil	animal grazing area animals in waterbody	manure storage areastorage areas uncovered
Commercial, Industrial & Urban:	parking lot waste storage area paved areas	vehicle maintenance yard drain pipes to waterbody trash/waste storage near v	sediment in ditches/culverts
Logging/ Forestry:	logging yard forested areas brush/slash near waterbodi	roads/trails exposed soil es	stream crossings poor roads
Other:	(specify)		
2. Do you see TributariesPipes/culve	f runoff: rills f nutrients: pet waste/man any of the following? If there a	re tributaries, catch basins dr your observation. Add color and odor): (Add color and odor):	en lawns other(specify)ain pipes, and/or culverts on the site,
-	ncerns (Check all that apply, des	cribe the location and cause, c	and indicate site on map)
Oily sheenSewage: (oFoam or scFishy odorAlgae or ac	or smell:	oam is probably natural.)	
F. Habitat and wildl Fish: (fish, Other aqua	ife (Evidence of) fish nests, anglers) Identify spectic life:insects,turtles,fr	cies if knownrogs,snails,mussels,cl	lams, other:
			arrative, Priority & Map Pages*

Lake Watershed Survey Area Summary Sheet 2: Priorities for Action

Surveyor's Names: Brittany F. + Hunnan N Section Name & Number: Millaged Lane

Look back at your data sheets and include your observations. The information from this sheet will be used to develop the Watershed Survey Report and Action Plan.

PROBI FMS.	ASSETS:	PRIORITIES FOR ACTION:
Problems found in your area, such as	Assets found in your area, such as good habitat,	List items from problems/assets columns that you
pipes or culverts discharging in dry weather,	wildlife species, businesses, or landowners using the	feel need more work.
erosion, runoff, trash, dense algae, water	river (in a friendly way), recreational access (canoe,	
quality problems (odor, color, oil, foam,	trails, parks), potential recreational access, and potential park/conservation land, scenic views	
loosestrife) (Describe and give location).	(Describe and give location).	
	I " us took sore" backcom	1. A rommo is needed -
	I Nowell	
2. Sepue	このできる	old deeps out of the
S. DEN SE HOUSING	2. great when	W. Whis
24. Crowner	1. Charles of the Kently	2.
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6 on slope, so all Mn of		
STATE DIRECTIONS		
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Ваѕес	Based on sheets provided by the Massachusetts Riverways Programs/DFWELE	WELE

Date: December 15, 2005

Survey Section: 5

Surveyors: Hannah Nestler & Brittany Flaherty

Weather Today: Cloudy & chance of flurries

Weather- past 2-5 days: Cloudy

Site Description:

residential development but it is all fairly set back from the road. Between the residential areas and the pond is a good size tree buffer, Overall, this is an excellent area for all wildlife and recreation- boating and fishing. The marshland looks very healthy. There is some The area lies along the southern side of the pond. It includes Peninsula Road, Great South Bay and the Bower's Brook Inlet. and there is not an excess of clearing to make way for houses.

Problem Areas:

- definitely an area that needs immediate addressing. Some form of buffer should be planted. Also, Tahanto Trail runs right over this stream, so that any sand or runoff from the asphalt would flow right into the pond. We observed clumps of soil A) The main problem with this area is a farm that is located directly next to a tributary that runs straight into the pond. The grazing pen for the animals is right next to the stream, so that any manure runoff could flow into the pond. This is deposits in the water, probably due to the runoff created by both the farm and the road.
- B) A second problem is the overgrowth of algae in the open water adjacent to the marsh. This is definitely due to the excess amounts of phosphorus in the pond, which is probably due to the farm and road runoff which flows into the stream, and thus into the pond. To regulate this overgrowth, it is necessary to first address the problems summarized in A.

FIELD SHEETS - NEAR-SHORE

LAKE and P	OND WATERSHED SURVE	Y FORM – NEAR SHORE AREA	
The state of the s	e Hill pond si	urvey Date: 15/65 rea Name & Number: 5 (past 2-5 days) 5 N O WY	
Landowners Contacted Dur	ng Survey:yes X_no	(past 2-5 days) SMONDY	
A. General Categories of Land	Uses Around and Upstream of	Your Survey Section (Identify the land use catego	ory on t
0 % Construction	(0 % Agricultural land	site. May be more than one	land us
50 % Residential	0 % Commercial, Industria	l and Urban Areas	
15 % Roads		· · · · · · · · · · · · · · · · · · ·	
25 % Other (please specify	, e.g. , rural, open, or recreational,)	
A.1. Specific Land Use on the	e Your Survey Section (Estimat	e % of site in each use. May be more than one land	l use.)
commercial	<u>¬¬</u> dirt road	O protected open space	
<u>D</u> industrial	lo local road	value of the state	
junk yard railroad	Dparking lot		
	O golf course	<u>So</u> forest	
<u>O</u> highway		<u>o</u> wetland	
<u></u>	opark or beach	other (specify)	
A.2. If Residential (Estimate	2% of site that is)		
_ Multifamily	60 year round	1	
<1/4 acre lots	seasonal		
30 1/2-1 acre lots			
<u>₹0</u> 1 acre (400 x 100 feet)			
. Site characteristics			
1. Dominant shoreline mater			
gravelsand	siltclay _dark	c organic muck & peatother	
2. Slope of site is	flatmoderate 🕺	steep	
3. The shoreline or riverbank	is (Check a or b, if there is	a stream, ditch, shoreline, or steep bank on si	to)
a)vegetated with	, ,	b) unstable and	10.7
vexposed roots	0	undercut	
shrubs and nativ	ve grasses (< 20 feet)	eroded	
trees taller than	^^	roded land	
4 77 10	710003 0	(W)	
4. Vegetated Cover:			
a) How much of the near	-shore water is shaded by trees	and shrubs? (estimate shading from 10 AM - 2 PM	U)
0-25%	25-50%50-75%		
15% grasses 1	a that is covered by each of thes % shrubs 77) % trees	se vegetation types is	
		(>20 feet)% little or none	
0-5 feet	shoreline does the band of tree _5-50 feet50-100 t	s, saruos, or grasses extend? feet	
Cita danima		-	
Site drainage			
1. Site runoff is directly to	and to the state of the state o		
ditch	catch basin _X vegetated l	bufferwetland other (describe)	
Over	·	•	

FIELD SHEETS - NEAR SHORE

Area Summary Sheet 2: Priorities for Action Lake Watershed Survey

Surveyor's Names: Britan Klube An & Human Nextle Section Name & Number:

Look back at your data sheets and include your observations. The information from this sheet will be used to develop the Watershed Survey Report and Action Plan.

sewage), and degraded wetlands (phragmites, pipes or culverts discharging in dry weather, erosion, runoff, trash, dense algae, water loosestrife) (Describe and give location). quality problems (odor, color, oil, foam, Problems found in your area, such as PROBLEMS:

1. PIPE Sansy your

2. Mouses close traplier 18. good will duffer translate

4, erosian Consteap 4 DING OF

S. Shewn RIGHT Next Slepe

to arring farmant asses into

to some trach

wildlife species, businesses, or landowners using the river (in a friendly way), recreational access (canoe, Assets found in your area, such as good habitat, trails, parks), potential recreational access, and potential park/conservation land, scenic views (Describe and give location).

2. I have of Parent 1. Me ver

6. not OVERLY developed Bus enough from the swear?

7. Marsh 100Ks health. whill her hepond 4 exalent booking anco

or officer and regioning List items from problems/assets columns that you 2. Pipe needs to be :buffers need to be PRIORITIES FOR ACTION checked feel need more work. Up dated

Based on sheets provided by the Massachusetts Riverways Programs/DFWELE

Survey Section: 6

Date: November 22, 2005

Surveyors: Brittany Flaherty & Hannah Nestler

Today's weather: clear and cool

Weather over past 24-48 hours: scattered snow and rain showers

Site Description:

through the middle of this section, upland of the pond, and approximately 15-20 houses inhibit the area around the road. Nearer to the We surveyed the east side of Bare Hill Pond from Warren Avenue inward, up to Thurston's Beach. Warren Avenue runs pond, several residences are built right near the pond's shore. About five houses are also found on Sheep Island.

Problem Areas:

- A) At Thurston's Beach, a small stream runs from directly near a house into the water, leaving foam in several water gullies along the sand were laid down to prevent erosion, and intentional rock piles act as a buffer zone. When looking out from the beach onto the fertilizer. However, most of the surrounding area consists of trees and shrubs, which act as good vegetation buffers. Some trash, way. Evidence of erosion can be seen at the waterside, but attempts to stop this deterioration have already taken place. Bags of pond, about 4 houses along its edge are very close to the shore, and may be increasing phosphorus levels due to pet waste and such as a lighter and a plastic ball, were left behind. The water appears clean and healthy.
- (which some appear to use), and should keep pets from swimming in the pond. C) Some driveways on slopes off of Warren may residences are located on a slope that leads directly into the pond. Such homes should be advised against using lawn fertilizer B) Houses off of Warren Avenue are generally situated far enough away from the pond that they are not threats, but several allow the passage of motor oils into the pond, although vegetative buffer zones are usually abundant.

FIELD SHEETS - NEAR-SHORE

LAKE and POND WATERSHED SURVEY FORM - NEAR SHORE AREA Lake and Watershed: Bare Hill Fond Survey Date: November 22, 2005 Surveyors Names: Brittony Flakerty & Hannah Nutter Area Name & Number: 6 - Thurston's Beach / Warker Weather Today: Clear & Cool Weather (past 2-5 days) Scattered Snow Showers Are. Landowners Contacted During Survey: yes no and raise A. General Categories of Land Uses Around and Upstream of Your Survey Section (Identify the land use category on the site. May be more than one land use.) % Agricultural land ∅ % Construction 35 % Residential % Logging/forestry 10 % Roads 55% rwal forests ____ % Other (please specify, e.g., rural, open, or recreational)____ A.1. Specific Land Use on the Your Survey Section (Estimate % of site in each use. May be more than one land use.) O protected open space A dirt road O commercial 20 local road 65 undeveloped land O industrial 2 parking lot Ojunk yard 0 meadow O golf course 65 forest <u>O</u>railroad () wetland Qgrazing/pasture (bridge 9 park or beach O other (specify) () highway A.2. If Residential (Estimate % of site that is...) 98 year round () Multifamily △<1/4 acre lots 2 seasonal 151/2-1 acre lots 85 > 1 acre $(400 \times 100 \text{ feet})$ B. Site characteristics 1. Dominant shoreline material is... ___clay ___dark organic muck & peat ___other ✓ gravel ✓ sand ___silt flat V moderate steep 3. The shoreline or riverbank is... (Check a or b, if there is a stream, ditch, shoreline, or steep bank on site.) b) unstable and... a) √ vegetated with... ✓ exposed roots undercut ✓ shrubs and native grasses (< 20 feet) ✓ trees taller than 20 feet both 4. Vegetated Cover: a) How much of the near-shore water is shaded by trees and shrubs? (estimate shading from 10 AM - 2 PM) ___25-50% ___50-75% **√**75-100% 0-25% b) The % of the bank area that is covered by each of these vegetation types is... 6% grasses 6% shrubs 6% trees (>20 feet) 6% little or none c) How far back from the shoreline does the band of trees, shrubs, or grasses extend? greater than 100 feet ___5-50 feet √50-100 feet ___0-5 feet C. Site drainage 1. Site runoff is directly to... _______dake _______ditch _____catch basin _____vegetated buffer _____wetland other (describe)_ Over

FIELD SHEETS - NEAR SHORE

	LAKE and POND WATERSI	HED SURVEY FORM – NEA	AR SHORE AREA
C. Site drainage, c			
2. Site runoff is fi			
Construction:	disturbed areas <1 acre)altered drainage pathways	disturbed areas >1 acre absence/failure of erosion	exposed soil n controls
Residential:	_√driveways	$\sqrt{\text{lawns}}$ (40) <1 acre	(a ≥ 1 acre)
	lush lawns	✓exposed soil	
	pet waste	pipe drains	
Roads:	pavement to catch basindrainage to waterbodysediment in ditches/culvert	bridge evidence of erosion ts/drains	✓ shoulders/country drainage ✓ sand build up in road
Agricultural:	field	animal grazing area	manure storage area
Agriculturai.	exposed soil	animal grazing area animals in waterbody	
Commercial	parking lot	vehicle maintenance yard	
Commercial, Industrial	parking forwaste storage area		sediment in ditches/culverts
& Urban:	✓ paved areas	trash/waste storage near	
		_	
Logging/	logging yard	✓ roads/trails	stream crossings
Forestry:	forested areas	exposed soil	poor roads
	brush/slash near waterbodi	ies	
Other:	(specify)		
D Land disturbances	that affect water quality		
	evidence of excess nutrients? (Check all that apply)	
Soil erosio		√sand √soil	stockpiled soil
Evidence o		✓ gullies ✓ cha	
	f nutrients: vet waste/man		en lawns other(specify)
	-	_	
2. Do you see		ire tributaries, catch basins dr your observation.	ain pipes, and/or culverts on the site,
. / Tributarias	bringing in ciltation: SOAL	Standard London	festizers.
	rts (describe conditions):		
	ibe what is going into the pipe (
	ibe any discharge from the pipe	-	
	pasins: full with (circle): trash		other
	olem catch basins on your map.	sama per waste on	
•			
	<u>cerns</u> (Check all that apply, des		
Oily sheen			
Sewage: (o	dor, milky color, toilet paper)_		· · · · · · · · · · · · · · · · · · ·
	um: (does a stick break it up? If it does, fo		
	or fish kill: uatic weeds (excessive growth):		
Obvious se	sh:	nd Thenton's Beach	- emin
F. Habitat and wildl			
Fish: (fish.	fish nests, anglers) Identify spec	cies if known	
Other agua	fish nests, anglers) <i>Identify spec</i> tic life: ✓insects, ✓turtles, fi	rogs,snails,mussels,c	lams, other:
	Identify species if known:	· · · · · · · · · · · · · · · · · · ·	
_√Waterfowl:	harons vanctes reesa	loons other	
Areas of go	ood habitat with wildlife: Descri	be lots of their an	a shletter /forest
			arrative, Priority & Map Pages*

Area Summary Sheet 2: Priorities for Action Lake Watershed Survey

Surveyor's Names: Brittery Flahedy & Hannah Westler Section Name & Number:

Look back at your data sheets and include your observations. The information from this sheet will be used to develop the Watershed Survey Report and Action Plan.

by the moe,	PROBLEMS:	ASSETS:	PRIORITIES FOR ACTION:
gae, water river (in a friendly way), recreational access (canoe, using foam, parks), potential recreational access, and potential park/conservation land, scenic views (Describe and give location). 1. Wird (Nee Angree) - Portat [wood 2.1 d. 1. wird (Nee Angree) - Portat [wood 2.1 d. 1. wird (Nee Angree) - Portat [wood 2.1 d. 1. wird (Nee Angree) - Notat (Nee Angr	your area, such as scharging in dry weather,	Assets found in your area, such as good habitat, wildlife species, businesses, or landowners using the	List items from problems/assets columns that you feel need more work.
1. Wild Obe Harrico - Breat fusos 21 de voad - vio angriato 21 de voad - vio angriato 21 de voad - vio angriato 22 de vois of cano e usage 32. Over en eur 5. Over en eur 6. Nice en eur 6. Nice en eur 6. No intervent clear	sh, dense algae, water dor, color, oil, foam, ded wetlands (phragmites, be and give location).	river (in a friendly way), recreational access (canoe, trails, parks), potential recreational access, and potential park/conservation land, scenic views (Describe and give location).	
Many postory in close provided the construction of constructions of constructions of the cons		1. WILLUKE HANNED - PARATIMON	
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