

# Allen Brook Pond, Allen Brook, Gay City Pond and Schreeder Pond TMDL

## TOTAL MAXIMUM DAILY LOAD (TMDL) OVERVIEW

$$TMDL = Point\ Sources + Nonpoint\ Sources + Background + Margin\ of\ Safety$$

- A requirement under section 303(d) of the Federal Clean Water Act
- A management tool used to restore impaired waters by establishing the maximum amount of a pollutant that a waterbody can receive without adverse impacts to fish, wildlife, recreation, or other public uses
- Developed for waterbodies listed on the CT Impaired Waters List
- Provides guidance for responsible parties to use as a framework for developing a TMDL implementation plan

## SUMMARY

A Total Maximum Daily Load (TMDL) document was prepared for Gay City Pond (Gay City State Park), Allen Brook Pond (Wharton Brook State Park) and Schreeder Pond (Chatfield State Hollow) at the request of the Bureau of Outdoor Recreation due to the total beach closures and total days closed data from 1998-2004 (**Table 1**) and to support efforts to obtain a 319 grant or secure other financial support for management actions addressing goose and pet waste at these State Parks. Beach closures were due to an exceedance of indicator bacteria (*E.coli*) levels in designated swimming areas according to State Water Quality Standards.

**Table 1: State Park Beach Closure Data 1998-2004**

State Park		1998	1999	2000	2001	2002	2003	2004	Cumulative Total
Gay City	Total Closures	1		2	6		5	3	17
	<b>Total Days Closed</b>	<b>8</b>		<b>3</b>	<b>16</b>		<b>21</b>	<b>37</b>	<b>85</b>
Wharton Brook	Total Closures	4		6	1	1	5	4	21
	<b>Total Days Closed</b>	<b>15</b>		<b>22</b>	<b>5</b>	<b>1</b>	<b>23</b>	<b>9</b>	<b>75</b>
Chatfield Hollow	Total Closures	2		3	2		2	3	12
	<b>Total Days Closed</b>	<b>10</b>		<b>11</b>	<b>10</b>		<b>4</b>	<b>8</b>	<b>43</b>

Allen Brook Pond was included on the 2004 *List of Connecticut Waterbodies Not Meeting Water Quality Standards (2004 List)*. Gay City Pond and Schreeder Pond were not included on the 2004 *List*, but are included on the 2006 *List*. Allen Brook was also included in the TMDL document because it was found to carry high levels of *E.coli* to the Pond and is included on the 2004 *List*.

The TMDLs were drafted using the “Cumulative Frequency Distribution Function Method”, which expresses the TMDL as an average percent reduction from the current condition required to achieve consistency with the State recreational water quality criteria for swimming areas. In all three ponds wet weather sources appear to be predominant (i.e. wet weather reductions are significantly higher than dry weather reductions). A summary of TMDL percent reductions, sources, and implementation are displayed in **Tables 2 and 3**.

## Allen Brook Pond, Allen Brook, Gay City Pond and Schreeder Pond TMDL

**Table 2: Watershed Characteristics, Potential Sources and Percent Reductions**

Waterbody	% Urban Watershed Land Use	Non-Point Sources (NPS)	Point Sources (PS)	Average % Reduction	
				Dry Weather	Wet Weather
Allen Brook Pond	59.5%	Wildlife, Pet Waste, Surface Water Base Flow (Allen Brook)	Regulated Storm Sewer/Urban Runoff from Allen Brook and Pipe at Inlet	3% (NPS)	21% (NPS) 25% (PS)
Allen Brook	59.5%	Wildlife, Horse/Pet Farms, Pet Waste, Unknown Sources	Regulated Storm Sewer/Urban Runoff, Illicit Discharges	64% (NPS)	73% (PS)
Gay City Pond	8.65%	Wildlife, Pet Waste	None	8 – 12% (NPS)	21 - 28% (NPS)
Schreeder Pond	2.76%	Wildlife, Pet Waste	None	0% (NPS)	18% (NPS)

**Table 3: Significant Sources and Potential TMDL Implementation**

Waterbody	Significant Sources and Potential TMDL Implementation
Allen Brook Pond	Stormwater flow from Allen Brook and pet waste via stormwater runoff from areas immediately surrounding the pond are significant sources of bacteria contamination. Direct stormwater piping to the pond may contribute bacteria but to a lesser degree. Stormwater from urban runoff is regulated under the MS4 Permit. BMPs in the park may include vegetative buffers around the pond, enforcement of pet policy, and additional signs in park regarding pet waste cleanup.
Allen Brook	Urban runoff is identified as the primary source of contamination during wet weather events. Urban runoff is regulated under the MS4 Permit. Illicit discharges, pet waste, and other unknown sources contribute bacteria loading during base flow conditions.
Gay City Pond	Geese were identified as a significant source of contamination. Beaver and pet waste may also augment the problem. Stormwater runoff transports bacteria to the pond from goose and pet waste deposited on the shore. Potential implementation may include nuisance wildlife BMPs, pet policy enforcement, and additional signs in park regarding pet waste cleanup.
Schreeder Pond	Pet waste is the main contributor of bacteria to the pond. Stormwater runoff transports pet waste found along the road circling the pond via concrete channels leading directly from the road to the swimming area. BMPs include pet policy enforcement and additional signs in the park regarding pet waste cleanup.