

# THE CSO LONG TERM CONTROL PLAN UPDATE

GREEN CITIES  
CLEAN WATERS

## Current Status of Our Waterways The City of Philadelphia



### Introduction

The Philadelphia Water Department (PWD) is charged with ensuring optimal compliance with the City's federal Clean Water Act (CWA) permit. In doing so, PWD is striving to define a stormwater management program that protects and enhances our region's waterways by managing stormwater in a way that significantly reduces the need for infrastructure (pipes). PWD believes that money spent on stormwater management and the attainment of CWA goals should also represent money spent to improve the natural resources of the City and to enhance the community. In 2007, PWD began to reevaluate its Combined Sewer Overflow (CSO) Long Term Control Plan (LTCP) and capital improvements program to integrate additional projects that will reduce CSO frequency and volume. The CSO Long Term Control Plan Update (LTCPU) involves the development of additional management alternatives to ensure capture and treatment of combined sewer system flows and the reduction of discharges from CSOs by building on the experience and progress gained from the implementation of our original CSO LTCP.

The US EPA's Guidance for Long Term Control Plan Development outlines a number of specific tasks for municipalities to undertake while developing their own LTCP, including what is called a "System Characterization." A system characterization includes a detailed assessment of current conditions of the combined sewer system and receiving waters. To accomplish this task, PWD initiated a detailed monitoring program that includes chemical, biological and physical assessments to characterize the current state of the watershed and identify existing problems and their sources. PWD characterized both CSO and non-CSO sources of pollution within each watershed, in order to better understand all causes of water quality impairment. Technical Memorandums, Reports, Plans and Documents for each of our watersheds are available on the City's Watershed Information Center website at [www.phillyriverinfo.org](http://www.phillyriverinfo.org)

This fact sheet includes a summary of existing conditions for the Cobbs, Tookany/Tacony-Frankford, Schuylkill and Delaware Watersheds; potential solutions for addressing problems identified through the System Characterization will be presented in a forthcoming fact sheet – winter 2009.

### **PWD's Monitoring and Assessment Programs for System Characterization:**

PWD's monitoring and assessment program includes the collection and organization of both existing and new data on surface water hydrology and quality, wastewater collection and treatment, stormwater control, land use, stream habitat and biological conditions, and historic and cultural resources in order to gain an understanding of what data already exists and where there may be gaps worth filling. Data are collected from various agencies and organizations in a variety of forms, ranging from reports to databases and Geographic Information System (GIS) files. To supplement existing data, PWD's Office of Watersheds (OOW) conducted an extensive sampling and monitoring program to characterize the conditions of each watershed.

*Schuylkill and Delaware Rivers:* The Delaware River Basin Commission (DRBC) and PWD have collected water quality data from sampling locations within the Delaware and Schuylkill Rivers. Additionally, the U.S. Geological Survey (USGS) had recorded historic baseline water quality data that can now be compared with the data collected by DRBC. This comparison allows for a more comprehensive analysis of water quality and the impacts of urbanization over the past 10 years.

*Cobbs and Tookany/Tacony-Frankford Creeks:* A Comprehensive Characterization Report (CCR) has been developed for both the Cobbs and Tookany/Tacony-Frankford Watersheds. CCRs form the scientific basis for the creation of an Integrated Watershed Management Plan. A CCR includes physical, chemical and biological assessments of a watershed and incorporates land use, geology, soils, hydrology, water quality, ecology, and pollutant loads related information about a watershed. PWD carried out a comprehensive sampling and monitoring program in the Darby-Cobbs watershed between 1999 and 2002 and in the Tookany/Tacony-Frankford between 2002 and 2004.

The definitions of words with an asterisk\* can be found in the glossary at the end of this publication.

For more information, please visit us at [www.phillyriverinfo.org](http://www.phillyriverinfo.org)

# Watershed Planning Process

PWD's Integrated Watershed Management Planning (IWMP) process is based on a carefully developed approach to meeting the challenges of watershed management in an urban setting. PWD developed their concept of regional watershed management planning recognizing that, as the downstream most entity in each of the watersheds leading to the City of Philadelphia, they could not make sustainable improvements to the waterways without support from upstream partners. The planning process also incorporates the best of existing municipal and conservation planning efforts (including River Conservation Plans, Open Space Plans, municipal Comprehensive Plans, etc.) as well as regulatory requirements and stakeholder goals. Its focus is on attaining priority environmental goals in a phased approach, making use of the consolidated goals of the numerous existing programs that directly or indirectly require watershed planning. These plans are built upon a solid, scientific foundation composed of water quality monitoring (wet and dry weather), macroinvertebrate and fish bioassessments, physical stream surveys (FGM) and computer simulated modeling programs for stormwater flows and pollutant loading.

An integrated watershed management plan is a long-term road map designed to achieve healthy communities and restore natural resources. An integrated plan embraces the laws designed to save our streams, preserve the streams' ecology, and enhance the parkland and riparian buffers that shelter these streams. The plan will also reach out to include the best of municipal and conservation planning efforts, which strive to ensure that growth within the watershed occurs with particular attention to the impacts on the environment. Most importantly, the plan will incorporate the goals of a diversity of people who live, work, and dream in all areas of the watershed.

## Watershed Partnerships:

Stakeholder support is critical to the success of a regional planning initiative. A diversity of stakeholder perspectives must be involved with the development of each stage in the planning process in order to ensure that the plan is representative of stakeholder interests. This stakeholder buy-in is most critical to ensuring ultimate implementation of the plan. Recognizing this, PWD has helped to develop stakeholder watershed partnerships for each watershed that drains to the City of Philadelphia. The ultimate goal is to cultivate a partnership committed to implementing the plan once completed.



## Characterization of Existing Conditions in Philadelphia's Watersheds

Philadelphia, which is being called "The Next Great City," faces new and exciting challenges in every aspect of city planning. Having to restore the natural resources of the waterways, as well as prevent further damage to the creeks and rivers is a tall order for such a rapidly growing and constantly changing City, but Philadelphia is embracing this challenge and leading the way with its integrated watershed management planning approach.

Philadelphia's urban watersheds suffer from many problems within the City limits. Many of these problems stem from the highly urbanized settings surrounding the waterways and have a direct correlation to the actions of the public and land management practices in the region.

During wet weather (when it is raining), our consequences on the environment are evident when bacteria (from human waste and other sources) ends up in our waterways through both combined and stormwater outfalls. This type of problem creates an environment which is not conducive to swimming, nor to any other form of primary contact with the water.

An additional problem in our waterways includes fluctuations in dissolved oxygen (oxygen in the water) levels, which have been observed in all of our urban creeks. These changes can adversely affect the health of the fish in our streams.

Furthermore, very high flows are common in our streams during larger storm events. During these events, the streamside vegetation along the creek banks begin to disappear, leading to erosion of the stream banks contributing to additional sediment in the water and habitat loss. High volume streamflows erode the stream banks and stream bottoms, and in many locations, this results in exposed PWD sewer infrastructure.

PWD and its partners are working hard to reverse the adverse impacts on our streams. As such, stream restoration projects, outreach to large property owners and the implementation of a variety of innovative stormwater management practices, such as green roof installations, are only a few examples of the steps that we are taking, as a City, towards the ultimate goal of transforming Philadelphia into a leading "green city" with "clean waters."

# Cobbs Creek



Cobbs Creek drains approximately 23 miles over portions of 10 municipalities and the City of Philadelphia, ultimately discharging into the Darby Creek. The designated uses for the non-tidal suburban portion of Cobbs Creek include all the state-wide uses including: Migratory Fishes, Warm Water Fishes, Potable Water Supply, Industrial Water Supply, Livestock, Water Supply, Wildlife Water Supply, Irrigation, Boating, Fishing, Water Contact Sports, Aesthetics, plus the addition of Migratory Fishes (25 PA§ 93.9e).

## Completed Plans and Watershed Assessments

A number of assessments and planning initiatives have been completed within this watershed area, each illuminating problems, potential problem sources as well as recommended solutions. PWD carried out a comprehensive sampling and monitoring program in the Darby-Cobbs Watershed between 1999 and 2002. PWD's sampling revealed some *good news* – very few (only five) of the Pennsylvania State Water Quality Criteria revealed exceedances of in dry weather conditions and thirteen during wet weather conditions. A total of 29 criteria were used to test these parameters. Also, during the biological assessment — 44 different species of fish were identified. And, as the Integrated Watershed Management Plan is implemented in this watershed, these numbers will only improve!

Among those evaluated by the CSO LTCPU process are:

- Cobbs Creek Wetland Assessment – 2000 and 2006
- Darby-Cobbs Comprehensive Characterization Report – 2004
- Geomorphologic Survey – Level II for Cobbs Creek – 2003
- Streamside Infrastructure Assessment – 2002
- Cobbs Creek Integrated Watershed Management Plan – 2004

- Darby-Cobbs River Conservation Plan – 2005
- The Darby-Cobbs Act 167 Stormwater Management Plan – 2005



## Partnerships

In 1999, the Philadelphia Water Department initiated the Darby-Cobbs Watershed Partnership in an effort to engage residents, businesses, and government, as neighbors and stewards of the watershed. Since then, the Partnership has been active in developing a vision for the watershed and guiding and supporting subsequent planning activities within the watershed.

The mission as established by the Darby-Cobbs Watershed Partnership is "To improve the environmental health and safe enjoyment of the Darby-Cobbs watershed by sharing resources through cooperation of the residents and other stakeholders in the watershed. The goals of the initiative are to protect, enhance, and restore the beneficial uses of the Darby-Cobbs waterways and riparian areas."

Current Conditions	
<b>Erosion, Sediment Accumulation, Flow Variety</b>	<ul style="list-style-type: none"> <li>• Stream bank erosion</li> <li>• Storm discharges</li> <li>• Channel modification</li> <li>• Hydromodification and combined sewer overflow</li> </ul>
<b>Wetlands</b>	<ul style="list-style-type: none"> <li>• 43 wetlands have been identified within the watershed (many impaired)</li> <li>• 10 wetland creation/enhancement opportunities have been identified</li> <li>• Invasive Species programs in place</li> </ul>
<b>Healthy Riparian Habitat</b>	<ul style="list-style-type: none"> <li>• Water diverted from land to waterways</li> <li>• Land Development/encroachment</li> <li>• Invasive Species Programs in place</li> <li>• Streamside tree plantings underway</li> </ul>
<b>In-stream Habitat and Biological Impairment</b>	<ul style="list-style-type: none"> <li>• Over-widening/Erosion</li> <li>• Loss of natural curves/Habitat alteration</li> <li>• Loss of floodplain</li> <li>• Loss of stream/floodplain connection</li> <li>• Loss/degradation of aquatic habitat</li> <li>• Severe water flow fluctuations</li> <li>• Point and non-point source (NPS) pollution from urban development</li> </ul>
<b>Sewer Odors</b>	<ul style="list-style-type: none"> <li>• Suspected sewer leaks during dry weather</li> <li>• Cross-connected sewer lines</li> <li>• CSOs*</li> </ul>
<b>Trash and Dumping</b>	<ul style="list-style-type: none"> <li>• Trash from stormwater discharge</li> <li>• Deliberate disposal of debris in the creeks</li> <li>• Careless behavior</li> </ul>
<b>Water Quality Concerns</b>	<ul style="list-style-type: none"> <li>• Sediment**</li> <li>• Bacteria***</li> <li>• Dissolved Oxygen****</li> </ul>

\*Combined Sewer Overflow (CSO) number in Cobbs Creek: 34

\*\*Sediment—symptom of erosion and habitat loss caused by high flows

\*\*\*Bacteria—levels are higher during and soon after wet weather when CSO's and stormwater outfalls are discharging to the stream

\*\*\*\*Dissolved Oxygen— Stormwater and CSO discharges, treated discharges, septic systems, lack of shade, invasive plant growth, natural sources, plunge pools and other poorly mixed areas

# Tookany/Tacony-Frankford Creek

The Tookany/Tacony-Frankford (TTF) Watershed drains 29 square miles of Philadelphia and Montgomery County. The creek is referred to as the Tookany Creek until it enters Philadelphia at Cheltenham Avenue; then as the Tacony Creek until the confluence with the historic Wingohocking Creek in Juniata Park; and finally the section of the stream from Juniata Park to the Delaware River is referred to as the Frankford Creek. Municipalities within this watershed drainage area include Cheltenham Township, Abington Township, Jenkintown Borough, Rockledge Borough, Springfield Township and the City of Philadelphia.

## Completed Plans and Watershed Assessments

A number of assessments and planning initiatives have been completed within this watershed area, each illuminating problems, potential sources as well as recommended solutions. From 2000 through 2004, PWD has collected water quality data for sampling locations in the Tookany/Tacony-Frankford Watershed. Sample results were compared to relevant PA DEP general water quality criteria to provide an initial impression of which parameters might need further investigation. Applicable relevant standards include water uses to support a potable water supply, recreation and fish consumption, human health, and aquatic life to support warm water fishes. PWD's sampling revealed some *good news* – very few (only nine) of the Pennsylvania State Water Quality Criteria revealed exceedances of in dry weather conditions and eighteen during wet weather conditions. A total of 46 criteria were used to test these parameters. Also, during the biological assessment — 17 different species of fish were identified. And, as the Integrated Watershed Management Plan is implemented in this watershed, these numbers will only improve!

Among those evaluated by LTCPU process are:

- TTF Creek Wetland Assessment – 2006
- Fluvial Geomorphologic Assessment of the TTF – 2006
- TTF Streamside infrastructure Assessment – 2005

- TTF Integrated watershed Management Plan— 2006
- Tacony-Frankford River Conservation Plan— 2005
- The TTF Act 167 Stormwater Management Plan— 2008



## Partnerships

TTF Partnership is a consortium of proactive environmental groups, community groups, municipalities, government agencies, businesses, residents, and other watershed stakeholders who have an interest in improving their watershed.

The goals of the partnership are to protect, enhance, and restore the beneficial uses of the waterways and riparian areas. Through watershed management we can mitigate the adverse physical, biological, and chemical impacts of land uses as surface and ground waters are transported throughout the watershed to the waterways.

The mission of the TTF Partnership is *“To increase public understanding of the importance of a clean and healthy watershed; to instill a sense of appreciation and stewardship among residents for the natural environment; and to improve and enhance our parks, streams, and surrounding communities in the Tookany/Tacony-Frankford watershed.*

## Current Conditions

<b>Erosion, Sediment Accumulation, Flow Variety</b>	<ul style="list-style-type: none"> <li>•Stream bank erosion</li> <li>•Storm discharges</li> <li>•Channel modification</li> <li>•Hydromodification and combined sewer overflow</li> </ul>
<b>Wetlands</b>	<ul style="list-style-type: none"> <li>•24 wetlands have been identified within the watershed (many impaired)</li> <li>•26 wetland enhancement opportunities have been identified</li> <li>•Invasive Species programs in place</li> </ul>
<b>Healthy Riparian Habitat</b>	<ul style="list-style-type: none"> <li>•Water diverted from land to waterways</li> <li>•Land Development/encroachment</li> <li>•Invasive Species Programs in place</li> <li>•Streamside tree plantings underway</li> </ul>
<b>In-stream Habitat and Biological Impairment</b>	<ul style="list-style-type: none"> <li>•Over-widening/Erosion</li> <li>•Loss of natural curves/Habitat alteration</li> <li>•Loss of floodplain</li> <li>•Loss of stream/floodplain connection</li> <li>•Loss/degradation of aquatic habitat</li> <li>•Severe water flow fluctuations</li> <li>•Point and non-point source (NPS) pollution from urban development</li> </ul>
<b>Sewer Odors</b>	<ul style="list-style-type: none"> <li>•Suspected sewer leaks during dry weather</li> <li>•Cross-connected sewer lines</li> <li>•CSOs*</li> </ul>
<b>Trash and Dumping</b>	<ul style="list-style-type: none"> <li>•Trash from stormwater discharge</li> <li>•Deliberate disposal of debris in the creeks</li> <li>•Careless behavior</li> </ul>
<b>Water Quality Concerns</b>	<ul style="list-style-type: none"> <li>•Sediment**</li> <li>•Bacteria***</li> <li>•Dissolved Oxygen****</li> </ul>

\*Combined Sewer Overflow (CSO) number in TTF Creek: 31

\*\*Sediment—symptom of erosion and habitat loss caused by high flows

\*\*\*Bacteria—levels are higher during and soon after wet weather when CSO's and stormwater outfalls are discharging to the stream

\*\*\*\*Dissolved Oxygen— Stormwater and CSO discharges, treated discharges, septic systems, lack of shade, invasive plant growth, natural sources, plunge pools and other poorly mixed areas

# Schuylkill River



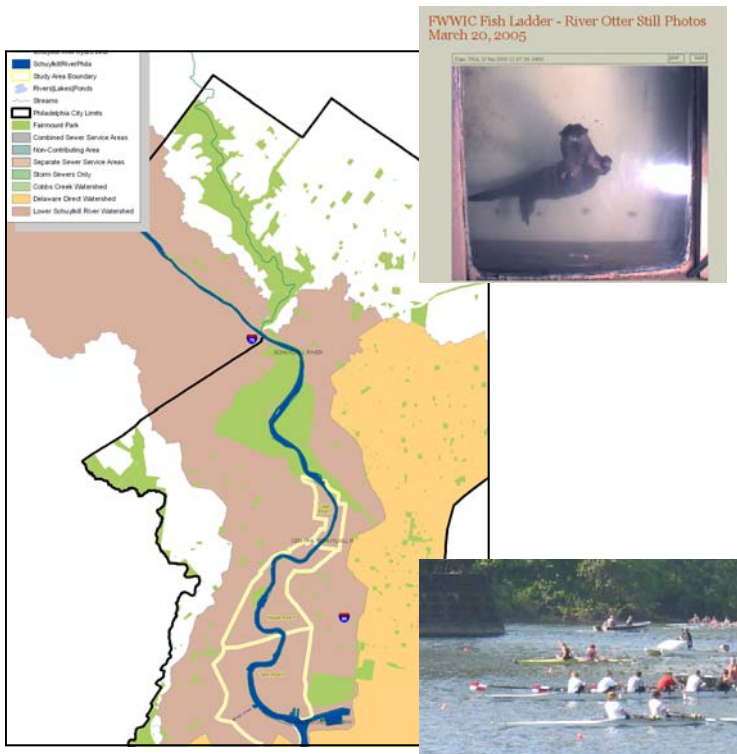
The Schuylkill River Watershed is located in southeast Pennsylvania, traveling approximately 130 miles from its headwaters at Tuscarora Springs in Schuylkill County to its mouth at the Delaware River in Philadelphia. The Schuylkill River and its tributaries have long been recognized for the important role they play as a source of drinking water and fish habitat. The mainstem of the Schuylkill became the first scenic river designated in Pennsylvania and one quarter of the watershed is designated as high quality or exceptional waters. Approximately 1.5 million people receive their drinking water from the Schuylkill River watershed. The Schuylkill watershed is comprised of eleven counties and over three million residents.

## Completed Plans and Watershed Assessments

A number of assessments and planning initiatives have been completed within this watershed area, each illuminating problems, potential sources as well as recommended solutions. PWD routinely performs electrofishing surveys on the tidal Schuylkill River to track fish populations; shad density within the watershed has been steadily increasing due to improved water quality across the watershed.

Among those evaluated by LTCPU process are:

- Schuylkill River Conservation Plan – 2001
- Tidal Schuylkill Master Plan – 2004
- Schuylkill River Source Water Protection Plan – 2005
- Delaware River Basin Commission Boat Run Data
- USGS Gage Stations



Current Conditions	
<b>Erosion, Sediment Accumulation, Flow Variety</b>	<ul style="list-style-type: none"> <li>• Storm discharges</li> <li>• Channel modification</li> <li>• Hydromodification and combined sewer overflow</li> </ul>
<b>Wetlands</b>	<ul style="list-style-type: none"> <li>• Multiple wetland creation/enhancement opportunities have been identified</li> <li>• Invasive species management programs in place</li> </ul>
<b>Healthy Riparian Habitat</b>	<ul style="list-style-type: none"> <li>• Water diverted from land to waterways</li> <li>• Land Development/encroachment</li> <li>• Invasive Species Programs in place</li> <li>• Streamside tree plantings underway</li> </ul>
<b>In-stream Habitat and Biological Impairment</b>	<ul style="list-style-type: none"> <li>• Loss of Floodplain</li> <li>• Loss of stream/floodplain connection</li> <li>• Loss/degradation of aquatic habitat</li> <li>• Habitat alteration</li> <li>• Point and non-point source (NPS) pollution from urban development</li> <li>• Hydromodification and CSOs</li> </ul>
<b>Sewer Odors</b>	<ul style="list-style-type: none"> <li>• Suspected sewer leaks during dry weather</li> <li>• Cross-connected sewer lines</li> <li>• CSOs*</li> </ul>
<b>Trash and Dumping</b>	<ul style="list-style-type: none"> <li>• Trash from stormwater discharge</li> <li>• Deliberate disposal of debris</li> <li>• Careless behavior</li> </ul>
<b>Water Quality Concerns</b>	<ul style="list-style-type: none"> <li>• Sediment**</li> <li>• Bacteria***</li> <li>• Dissolved Oxygen****</li> </ul>

## Partnerships

The Schuylkill Action Network was initiated in 2003 as a joint collaborative network supported by the EPA, PA DEP and City of Philadelphia along with numerous partners from throughout the watershed.

The purpose of the SAN is:

*"To improve the water resources of the Schuylkill River watershed by working in partnership with state agencies, local watershed organizations, water suppliers, local governments, and the federal government to transcend regulatory and jurisdictional boundaries in the implementation of protection measures."*

\*Combined Sewer Overflow (CSO) number in Schuylkill River: 46

\*\*Sediment—symptom of erosion and habitat loss caused by high flows

\*\*\*Bacteria—levels are higher during and soon after wet weather when CSO's and stormwater outfalls are discharging to the stream

\*\*\*\*Dissolved Oxygen— Stormwater and CSO discharges, treated discharges, septic systems, lack of shade, invasive plant growth, natural sources, plunge pools and other poorly mixed areas

# Delaware River

(Delaware Direct)



The Delaware Direct Watershed, located entirely in Philadelphia and draining approximately 84 square miles, is highly urbanized and discharges directly to the Delaware River. As an urban watershed, this area has rich complexities and multiple dimensions—diverse land use and communities, Center City, a formerly industrial Delaware waterfront, and a mix of neighborhoods and communities, reflecting a wide range of stakeholders, concerns and interests. Yet, there are many planning projects underway, many people gathering around the river and many groundbreaking events and projects taking place at this very moment in Philadelphia. As a result, the plans and teams behind these projects are aiding in the reconnection of the people and the City of Philadelphia to its waterway, making the streams and parks in our communities valuable assets to our citizens and joining PWD and partners in our protection efforts.

## Completed Plans and Watershed Assessments

A number of assessments and planning initiatives have been completed within this watershed area, each illuminating problems, potential sources as well as recommended solutions. Dissolved Oxygen levels have increased significantly over the last three decades, enabling shad to more freely though the tidal zone of the Delaware River and into the freshwater zone in Philadelphia, as they make their way to the Fairmount Fish Ladder in the Schuylkill River. Where the shad were once limited by a lack of oxygen, they are returning to migrate up the Delaware River - a valuable indicator of improving environmental conditions!

Among those evaluated by the CSO LTCPU process are:

- Delaware Direct River Conservation Plan—2009
- Delaware River Source Water Protection Plan—2007
- Delaware Estuary Program’s State of the Estuary Report—2008
- GreenPlan Philadelphia — 2008
- North Delaware Riverfront Master Plan — 2001
- Central Delaware Riverfront Planning Process — 2008
- Northern Liberties Waterfront Plan — 2007

- Philadelphia Navy Yard Master Plan
- Delaware River Basin Commission Boat Run Data
- USGS Gage Stations



Current Conditions	
<b>Erosion, Sediment Accumulation, Flow Variety</b>	<ul style="list-style-type: none"> <li>• Stream bank erosion</li> <li>• Storm discharges</li> <li>• Channel modification</li> <li>• Hydromodification and combined sewer overflow</li> </ul>
<b>Wetlands</b>	<ul style="list-style-type: none"> <li>• Several wetland creation/enhancement opportunities have been identified</li> </ul>
<b>Healthy Riparian Habitat</b>	<ul style="list-style-type: none"> <li>• Water diverted from land to waterways</li> <li>• Land Development/encroachment</li> <li>• Invasive Species Programs in place</li> <li>• Streamside tree plantings underway</li> </ul>
<b>In-stream Habitat and Biological Impairment</b>	<ul style="list-style-type: none"> <li>• Loss of flood plain</li> <li>• Loss of stream/floodplain connection</li> <li>• Loss/degradation of aquatic habitat</li> <li>• Point and non-point source (NPS) pollution from urban development</li> </ul>
<b>Sewer Odors</b>	<ul style="list-style-type: none"> <li>• Suspected sewer leaks during dry weather</li> <li>• Cross-connected sewer lines</li> <li>• CSOs*</li> </ul>
<b>Trash and Dumping</b>	<ul style="list-style-type: none"> <li>• Trash from stormwater discharge</li> <li>• Deliberate disposal of debris in the creeks</li> <li>• Careless behavior</li> </ul>
<b>Water Quality Concerns</b>	<ul style="list-style-type: none"> <li>• Sediment**</li> <li>• Bacteria***</li> <li>• Dissolved Oxygen****</li> </ul>

## Partnerships

The Delaware Direct Watershed Partnership was formed in 2007 to support the River Conservation Planning process for the Delaware Direct River Conservation Plan. A myriad of stakeholders are involved— non-profits, state and local government, in addition to community representatives.

\*Combined Sewer Overflow (CSO) number in Delaware River: 54

\*\*Sediment—symptom of erosion and habitat loss caused by high flows

\*\*\*Bacteria—levels are higher during and soon after wet weather when CSO's and stormwater outfalls are discharging to the stream

\*\*\*\*Dissolved Oxygen— Stormwater and CSO discharges, treated discharges, septic systems, lack of shade, invasive plant growth, natural sources, plunge pools and other poorly mixed areas

# Philadelphia Water Department Internet Resources

## PhillyRiverInfo

<http://www.phillyriverinfo.org/>

On this website, you will find general information on Philadelphia's watersheds as well as upcoming watershed-related events. Check this site often to find out what is going on in your watershed!

## Green Cities, Clean Waters (LTCPU)

<http://www.phillyriverinfo.org/csoltcpu/>

An offshoot of PhillyRiverInfo, this website focuses on the Green Cities, Clean Waters Program (Combined Sewer Overflow Long Term Control Plan Update). Here you can read about details of the plan and learn about the basics of a combined sewer system.

## CSOCast

<http://www.phillywatersheds.org/csocast/>

**NEW!** This website is PWD's latest effort to show the overflow status of the City's 164 Combined Sewer Outfalls. CSO Cast indicates whether CSOs are occurring or are suspected to have occurred within the last 24 hours. It is updated twice daily with information from PWD's extensive sewer monitoring network.

## RiverCast

<http://www.phillyrivercast.org/>

The Philly RiverCast is a forecast of water quality that predicts potential levels of pathogens in the Schuylkill River between Flat Rock Dam and Fairmount Dam (i.e., between Manayunk and Boathouse Row). Visit this site to find out the daily RiverCast prediction and to learn more about water quality.

## Rain Barrel Program

<http://www.phillywatersheds.org/rainbarrel/>

The Philadelphia Water Department is providing rain barrels to residents of Philadelphia's watersheds free of charge, in order to promote the reduction of stormwater flows to our sewer system and creeks. To receive a rain barrel, you must attend a rain barrel workshop to be educated on the installation and use of the rain barrel. Rain barrel workshops are held in locations around the city throughout the year. Check this website to see when a workshop is being held in your watershed.



# THE CSO LONG TERM CONTROL PLAN *UPDATE*

**GREEN CITIES  
CLEAN WATERS**

## Clean Water Benefits and the Balanced Approach The City of Philadelphia



### **Combined Sewer Overflow (CSO)**

A wastewater collection system that transports wastewater from homes, businesses, industry, and stormwater from storm drains on our city streets through a single-pipe system to a Water Pollution Control Plant. Under heavy rainfall conditions the flow in the combined sewers may exceed the capacity of the pipe or treatment facility. As a result, a portion of the wastewater and stormwater may be diverted directly to a nearby stream or river to prevent the flooding of homes and streets.

### **National Pollutant Discharge Elimination System (NPDES)**

A provision of the Clean Water Act which prohibits discharge of pollutants into waters of the United States unless a special permit is issued by EPA, a state, or, where delegated, a tribal government on an Indian reservation.

### **Non-Point Source**

Diffuse pollution sources (i.e., without a single point of origin or not introduced into a receiving stream from a specific outlet). The pollutants are generally carried off the land by stormwater. In Philadelphia, examples include stream bank erosion and construction.

### **Point Source**

A stationary location or fixed facility from which pollutants are discharged; any single identifiable source of pollution; e.g. a pipe, ditch, ship, ore pit, factory smokestack. Municipal sewer systems are regulated as point sources.

### **Pollutant**

Generally, any substance introduced into the environment that adversely affects the usefulness of a resource of the health of humans, animals, or ecosystems.

### **Receiving Waters**

A river, lake, ocean, stream or other watercourse into which wastewater or treated effluent is discharged.

### **Runoff**

That part of precipitation, snow melt, or irrigation water that runs off the land into streams or other surface-water.

### **Sanitary Sewer**

Underground pipes that carry only domestic or industrial waste, not storm water.

### **Sanitary Sewer Overflow (SSO)<sup>+</sup>**

Untreated or partially treated sewage overflows from a sanitary sewer collection system.

*Definition from Philadelphia Water Department*

### **Stormwater<sup>+</sup>**

The water that runs off surfaces such as rooftops, paved streets, highways and parking lots. It can also come from hard grassy surfaces like lawns, play fields, and from graveled roads and parking lots. *Definition from King County, Water and Land Resources Division.*

### **Wastewater**

The spent or used water from a home, community, farm, or industry that contains dissolved or suspended matter.

### **Water Pollution**

The presence in water of enough harmful or objectionable material to damage the water's quality.

### **Water Quality Standards (WQS)**

Water quality standards are provisions of state or federal law which consist of a designated use or uses for the waters of the United States, water quality criteria to protect the most sensitive uses for such waters, and an anti-degradation policy and implementation procedures to protect water quality. Water quality standards are established to protect the public health or welfare, enhance the quality of water and serve the purposes of the CWA.