

# Des Plaines/Higgins Creek Watershed TMDL Final (Revised) with the Implementation Plan-

<http://www.epa.state.il.us/water/tmdl/>

## Public Meeting

Illinois EPA  
Bureau of Water  
Watershed Management Section  
Planning Unit  
Jennifer Clarke

August 28, 2012



# Presentation Outline

- TMDL Review
- TMDL Stages
- TMDL Revision
- Implementation Plan
- Buffalo Creek Clean Water Partnership



# Total Maximum Daily Load (TMDL)

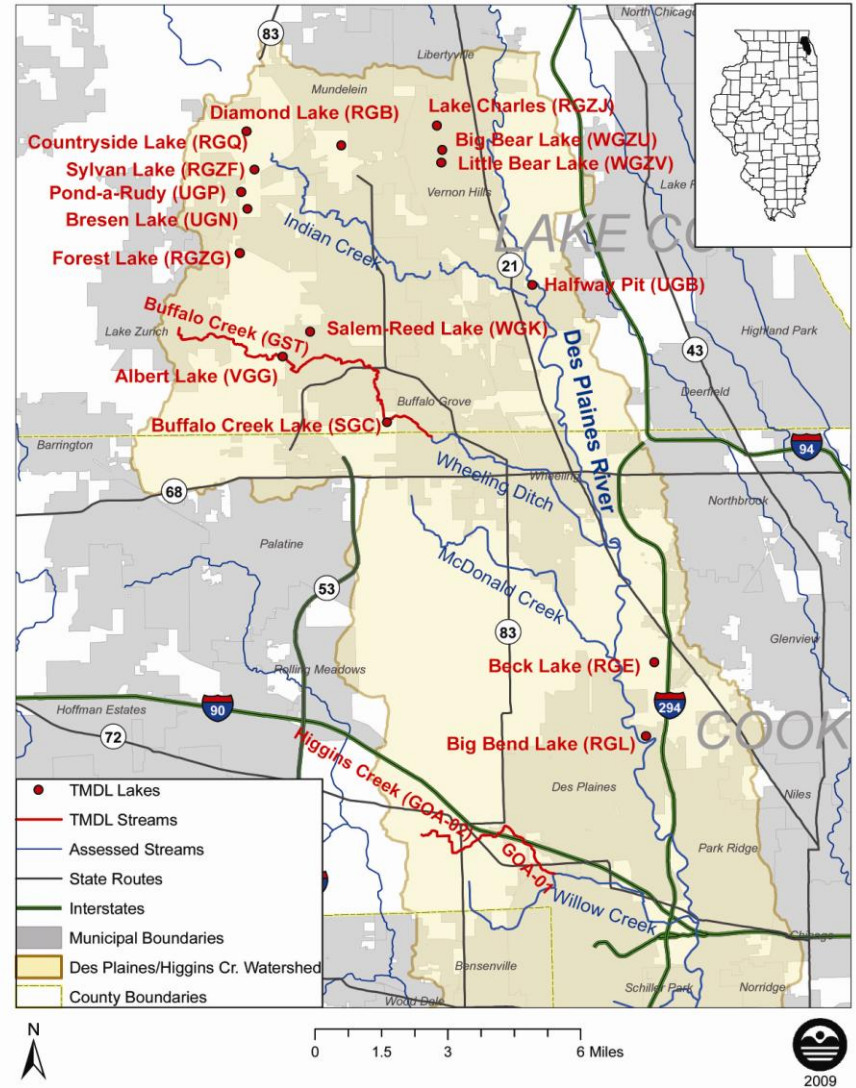
- Waters of the state are assessed- Integrated Report Appendix B (305b)
  - Over 70,000 miles of stream/ 15,000 assessed
  - Over 3,000 inland lakes (318,000 acres)/ 147,000 assessed
  - Plus Lake Michigan and bordering rivers
- Waters may be impaired- Integrated Report Appendix A (303d)
  - 8,537 miles, 142,761 acres impaired
- Impaired waters (303d) require TMDLs
  - $TMDL = Wasteload\ Allocation\ (WLA) + Load\ Allocation\ (LA) + Margin\ of\ Safety\ (MOS)$
  - “TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards and support designated uses.”

## Stages 1, 2 and 3

- Stage 1 – Watershed characterization
  - Land Use and Soil
  - Water quality data analysis
  - NPDES facilities and MS4 communities
  - TMDL methodology selection
  - First public meeting- May 19, 2009
- Stage 2 – Data collection- 8 lakes- TP, DP, TSS, DO, pH
- Stage 3- Modeling, allocations and an implementation plan
  - Wasteload allocations for point sources and load allocations for nonpoint sources/ reductions needed to meet standards
  - Second public meeting August 11, 2010

# Targeted Segments for TMDL Development

Waterbody Name	Segment ID	Impairment
Albert Lake (outlet)	IL_VGG	Dissolved oxygen
Beck Lake	IL_RGE	Phosphorus (total)
Big Bear Lake	IL_WGZ U	Phosphorus (total)
Big Bend Lake	IL_RGL	Phosphorus (total)
Bresen Lake	IL_UGN	Phosphorus (total)
Buffalo Creek	IL_GST	Chloride, dissolved oxygen, fecal coliform
Buffalo Creek Lake	IL_SGC	Dissolved oxygen, phosphorus
Countryside Lake	IL_RGQ	Phosphorus (total)
Diamond Lake	IL_RGB	Phosphorus (total)
Forest Lake	IL_RGZG	Phosphorus (total)
Halfday Pit Lake	IL_UGB	Dissolved oxygen
Higgins Creek	IL_GOA-01	Chloride, fecal coliform
Higgins Creek	IL_GOA-02	Chloride, dissolved oxygen, fecal coliform
Lake Charles	IL_RGZJ	Phosphorus (total)
Little Bear Lake	IL_WGZV	Phosphorus (total)
Pond-A-Rudy	IL_UGP	Dissolved oxygen
Salem-Reed Lake	IL_WGK	Phosphorus (total)
TMDL Stage 3 Sylvan Lake	IL_RGZF	Fecal coliform, phosphorus (total)



# Modifications/ Additions- GOA-01

- Added percentage of total load
- Added Current Wasteload based on DMR data
- Reserve capacity only can be used for any unsewered areas
- Streamflow mostly point source derived/ point sources have limits
  - DMR analysis for 5 years- 4 exceedences for MWRDGC Kirie and 18 for Des Plaines Mobile Home Park

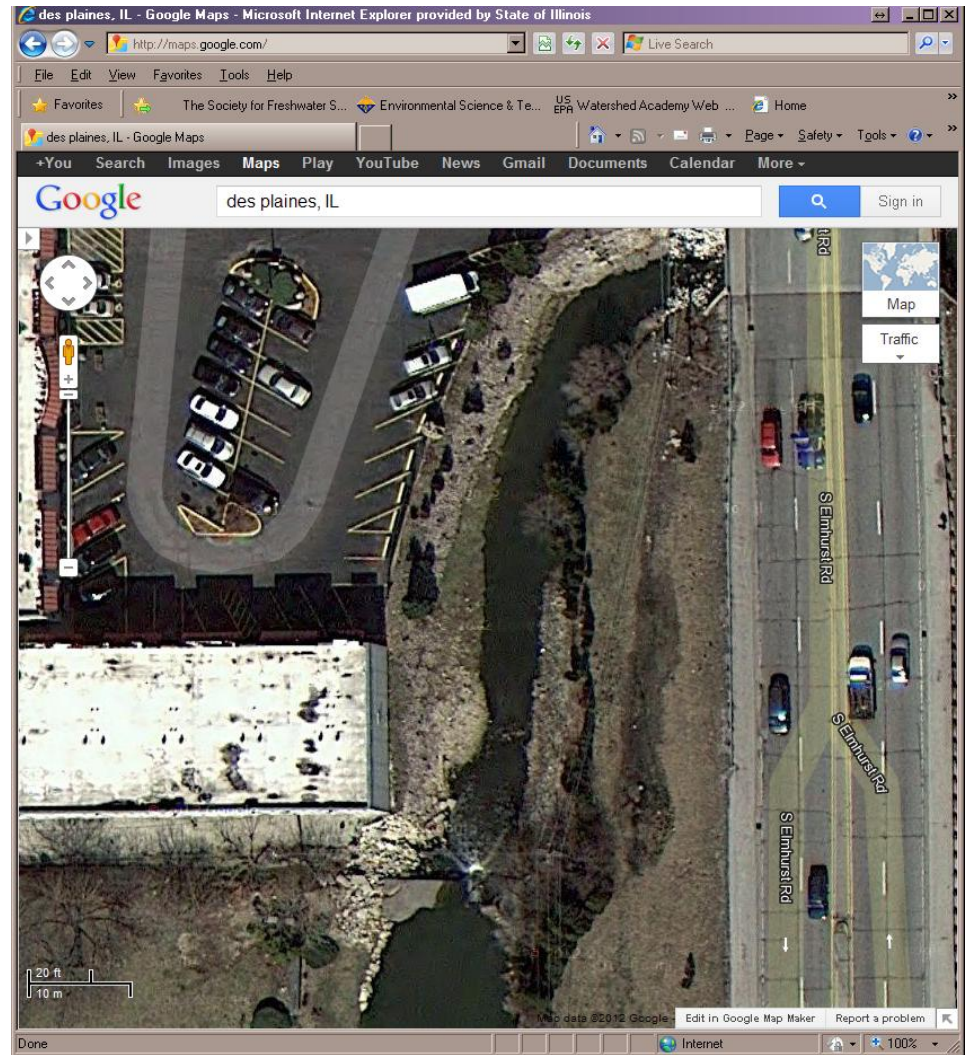
units = cfu/day	High Flows (0-10)	% Total Load
TMDL	4.50E+11	N/A
Current Load	1.98E+12	N/A
MS4	2.85E+11	63%
LA	9.74E+10	22%
WLA	3.58E+08	0.1%
Reserve Capacity	2.25E+10	5%
MOS	4.50E+10	10%
% Reduction	77%	N/A

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TMDL	4.50E+11	N/A
Current Load	1.98E+12	N/A
MS4	2.85E+11	63%
LA	9.75E+10	22%
Current Wasteload	1.61E+08	0.04%
Reserve Capacity	2.25E+10	5%
MOS	4.50E+10	10%
% Reduction	77%	N/A



# Modifications/ Additions- GOA-02

- MWRDGC Kirie WWTP mistakenly identified as point source for this segment that is impaired for DO
- TMDL model looked at CBOD and ammonia/ even when CBOD and nutrients reduced, DO still not meeting standard
- SOD and hydraulic alterations causing impairment



## Modifications- Lakes

- Big Bend Lake and Half-day Pit
- Allocations were given to Des Plaines River since the river backflows into the lake at high flows

Point Source Dischargers	Total Phosphorus Load (lbs/day)
Glenview MS4	0.009
Des Plaines MS4	0.015
Des Plaines River	1.376

Point Source Dischargers	Total Phosphorus Load (lbs/day)
Des Plaines River	0.340
Lincolnshire MS4	0.205

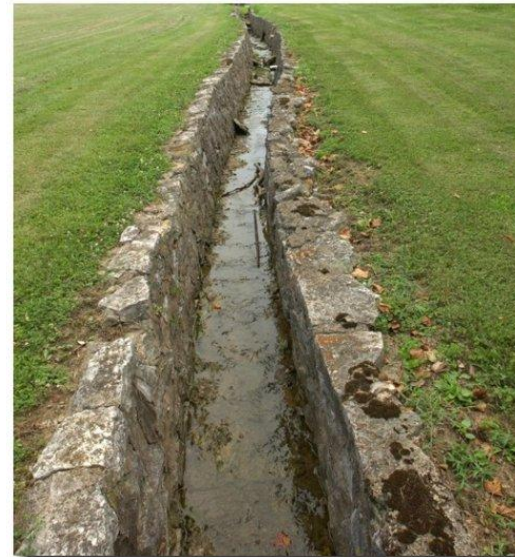


# Implementation Plan

- Point sources are regulated by IEPA permit program
  - NPDES facilities must meet their permit limits
  - MS4 stormwater requirements- public education/ outreach, public involvement, illicit discharge detection and elimination, construction site runoff control, post construction runoff control and pollution prevention
- Nonpoint source controls voluntary
  - IEPA 319 Program awards grants for managing nonpoint source pollution



<http://love-theearth.blogspot.com/2010/10/effects-of-pollution.html> 9/25/2012



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[http://www.lookfordiagnosis.com/mesh\\_info.php?term=drainage&lang=1](http://www.lookfordiagnosis.com/mesh_info.php?term=drainage&lang=1)

# Chloride- Buffalo Creek and Higgins Creek

- Potential to accumulate over time
- Toxic to aquatic organisms and even low levels can impact biological communities
- Largest source- road salt used for de-icing
  - Responsible parties- Municipalities private party contractors, IDOT, and Illinois Tollway Authority
  - Actions-
    - Public education and staff training
    - Proper storage and handling
    - Proper application
    - Alternative products
  - DRSCW Materials- <http://www.drscw.org/winter.html>



<http://www.drscw.org/chlorides/DRSCWcommercialoperators.pdf>

# Dissolved Oxygen- Buffalo Creek and Higgins Creek

- Buffalo Creek requires 39% reduction in CBOD and 30% reduction in ammonia
- Higgins Creek impaired due to SOD and hydraulic alterations
- Sources
  - MS4 and nonpoint sources of oxygen demanding materials
    - Fertilizers for lawns and other landscaping contribute nutrients and organic material
    - Runoff from impervious surfaces contribute organics
  - Stream alteration/erosion- concrete lined ditch, lack of floodplain, loss of riparian areas/habitat
    - Reduction in shade, increase in water temperature/decrease in DO
  - Impoundments
    - Possible modifications can reduce pollutant settling and increase aeration

# Implementation Actions

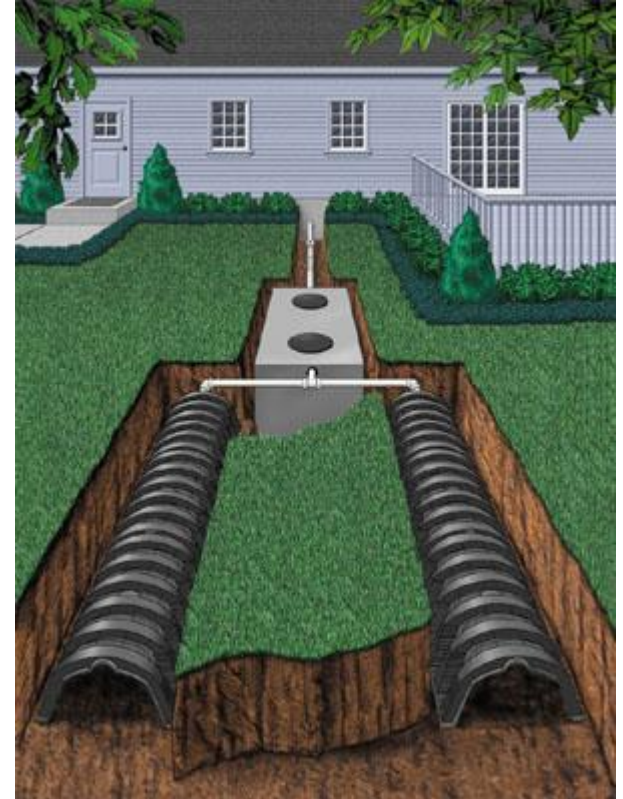
- Bio-Retention Cells
- Filter Strips and Riparian Buffers
- Nutrient Management
- Septic System Maintenance
- Street Sweeping
- Vegetated Swales
- Wildlife Exclusion
- Wetlands



<http://www.crd.bc.ca/watersheds/lid/garden.htm>

# Fecal Coliform Bacteria- Buffalo Creek, Higgins Creek and Sylvan Lake

- Sources-
  - Point sources have bacteria limit
  - Wildlife- buffer strips and riparian areas planted along stream corridors and lake shorelines- not only deter geese from congregating along waters and prevent erosion, but can decrease phosphorus, suspended solids and fecal coliform from runoff
  - Septic systems failures- maintenance needed in aging systems
  - Urban stormwater runoff- wetlands or runoff detention
  - Agriculture- livestock exclusion (Sylvan Lake watershed)



[http://structural-design-solutions.com/Septic\\_Inspections.html](http://structural-design-solutions.com/Septic_Inspections.html)



# Phosphorus- Beck, Big Bear, Bresen, Buffalo Creek, Big Bend, Countryside, Diamond, Forest, Charles, Little Bear, Salem-Reed, Sylvan Lakes

- Point sources- phosphorus limit may be put in permit at some point in the future
- Urban stormwater runoff- Low impact development techniques reduce intensity of stormwater runoff
  - Lawn fertilizer without high phosphorus, permeable/porous pavement, rain gardens and vegetated rooftops, wetlands, filter strips, riparian buffers, sediment control basins, wetlands, street sweeping
- Agriculture- conservation tillage, nutrient management, livestock exclusion



<http://www.chisagoswcd.org/Rain%20Gardens.htm>

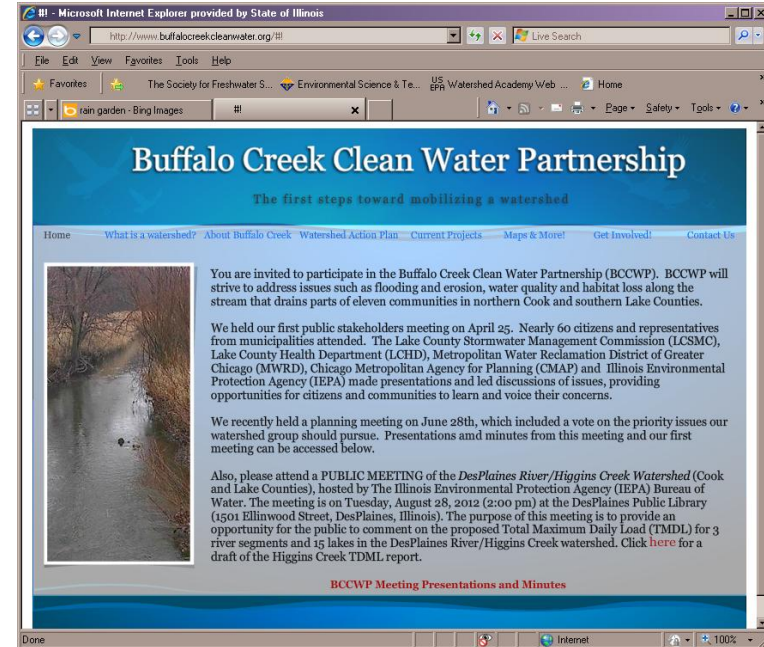


# LCHD Lake Reports

- Albert, Big Bear/Little Bear, Bresen, Buffalo, Countryside, Diamond, Forest, Half-day Pit, Charles, Pond-a-Rudy, Salem Reed, Sylvan Lake
- <http://www.lakecountyil.gov/Health/want/Pages/LakeReports.aspx>
- Detailed lake reports that include data analysis and specific best management practices (BMPs) for each lake and watershed

# Next Steps

- Make any necessary changes to the TMDL based on public comments/ Responsiveness Summary
- Send to USEPA for approval
- 319 Nonpoint Source Grants
- Buffalo Creek watershed group-  
<http://www.buffalocreekcleanwater.org/#>



# Thank You

## Contact Information

Email: [Jennifer.clarke@illinois.gov](mailto:Jennifer.clarke@illinois.gov)

Ph: 217/782-3362