# The Total Maximum Daily Load (TMDL) Program in Illinois

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# Illinois EPA TMDL Program

- What is a TMDL
- The TMDL Process in Illinois
- 3rd Party Process
- TMDL Website
- IL TMDL Statistics
- TMDL Report

# What is a TMDL?

- "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."

# TMDL Calculation

**TMDL = WLA + LA + MOS [+ RC]**

- Wasteload allocation--point sources
- Load Allocation--nonpoint sources
- Margin of Safety
- Optional Reserve Capacity for point sources
- Seasonal Effects and Growth

# Point Sources

## -require NPDES Permits

- The term "point source" means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rollingstock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. *–Federal Clean Water Act*

# Point Sources

- Municipal Sewage Treatment Plants
- Industry that discharge wastewater.
- Confined Animal Feeding Operations
- Municipal Stormwater Outfalls
- Combined Sewer Overflows
- MS4 communities (overland stormwater)

# Non Point Sources

- Anything that is not a point source- i.e. does not require an NPDES permit.
- NPS pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters and ground waters.

# 3rd Party TMDL PROCESS

- Applicant submits plan to Illinois EPA as a 319 grant application.
  - TMDL could also be completed without using IEPA funds—still must be approved by IEPA and USEPA
- Grant is awarded. Work completed by the recipient or by contractor hired by recipient.

# 3rd Party TMDL PROCESS

- Illinois EPA project manager reviews and approves work, approves reimbursement payments.
- 319 Grant is 60/40

# 3rd Party TMDL PROCESS

- Timeframe for completion is 2-3 years depending on scope of work
- Online application process
- **Work with us early and often!**

# TMDL Development

- TMDLs are developed in Three Stages
  - Stages 1 and 2 could be combined into single Stage depending on sampling strategy.
- Currently, IEPA only developing TMDLs for parameters with numeric standards
  - Fecal coliform
  - Metals
  - pH
  - DO
  - Total Phosphorus (lakes only)

# Load Reduction Strategies

- Developed for pollutants without numeric standards.
  - TSS
  - Total Phosphorus for streams
- Appropriate water quality concentration targets are selected for each pollutant
- Load reductions are developed but are not split between point and nonpoint sources

# TMDL Development

- Public meetings held in the watersheds throughout TMDL process to inform stakeholders on TMDL developments.
  - Minimum of one meeting required, two or three recommended
- Once the TMDL report is complete and approved by Illinois EPA, it is sent to USEPA for approval.

# Stage 1 TMDL Development

- Watershed Characterization, Data Analysis, Methodology Selection
  - Description of the watershed
  - Collection/analysis of available data
  - ID methodologies, procedures and models to be used to determine load reductions/allocations
  - Identifies what additional data is needed

# Watershed Characterization

- Watershed/subwatershed delineations
- Land use data
- Soils data
- Water body description
- Precipitation
- Flow
- Point sources-DMR data
- Activities in watershed-mining, agriculture
- Water Quality data

# Watershed Data Sources

- Watershed delineations: NRCS
- Land use data: IDNR/IDOA
- Soils data: NRCS
- Water body description: IEPA, US Army Corps of Engineers
- Precipitation/Temp: NOAA, ISWS, NCDC
- Flow: USGS
- Topography: USGS

# Watershed Data Sources (cont)

- Point sources/NPDES Permits: IEPA
  - Municipal/industrial discharges
  - CAFOs
  - Stormwater/MS4
  - CSOs
  - Mining
- DMR data: IEPA website
  - http://dataservices.epa.illinois.gov/dmrdata/default.aspx

# Watershed Data Sources (cont)

- Water Quality data: IEPA

Assessed Lakes and Streams

  - Data since 1999 available upon request from IEPA
  - Specify Segment ID, parameters

# Watershed Data Sources (cont)

- Activities in watershed-mining, agriculture, development, septic systems, etc:

**Local Agencies!!!!**

  - City/County Health Depts.
  - Soil and Water Conservation Districts/NRCS
  - County Extension
  - Stormwater management agencies
  - Planning Commissions

# Stage 2 TMDL Development

- **Stage 2: <u>Data Collection</u>**
  - Optional Stage
    - Evaluate Stage 1 data and attempt to collect additional data as needed.
      - Water quality, flow, precipitation, etc.
    - Could be completed during Stage 1

# Components of Stage 2

- QAAP
  - Must be approved by IEPA in order to accept data. Recommend QAAP submission *before* data collection to ensure data acceptance.
- Monitoring/Data Collection
- Data Review
- Database Development

# Stage 3 TMDL Development

- **Stage 3: Model Calibration, Calculate Loads, Implementation Plan**
  - Develop TMDLs with data from Stages 1 and 2
  - Calculate Loads for each pollutant
  - Load Allocations (WLA and LA), determine pollutant reduction needs.
  - Develop an Implementation Plan

# Using Models to Calculate TMDLs

- Watershed models
  - used to estimate pollutant loads from the watershed
  - address both point source and nonpoint sources
  - different models used depending on pollutants, waterbody type, land uses
  - GWLF, HSPF, RUSLE, WASP

# Using Models to Calculate TMDLs

- Water Quality Models
  - Determine fate of pollutants and their effects once in the waterbody
  - Streams
    - QUAL2K: Dissolved Oxygen, ammonia, BOD
    - Load Duration Curve: fecal, metals, nitrates
  - Lakes
    - BATHTUB: Nutrients, DO

| Category | TP (lb/yr) | TP (lb/day) |
|---|---|---|
| Existing Load | 31,923 | 87.5 |
| Reduction | 66% | 66% |
| Loading Capacity | 10,805 | 29.6 |
| Waste Load Allocation | 320 | 0.9 |
| Margin of Safety (5%) | 540 | 1.5 |
| Load Allocation | 9,945 | 27.2 |

# Implementation Plan

- *Not* required by USEPA – **Is** required by IEPA
  - Must meet USEPA "Nine Minimum Elements"
    - IEPA and USEPA guidance available.

- Recommendations and suggestions for restoring water quality so that designated uses and water quality standards are attained for an impaired water body.

- Watershed planning committees are encouraged to participate

# Implementation Plan

- Strength of 3rd Party TMDLs
  - Local citizens, working with local agencies to develop site specific implementation plans
  - 3rd party directly involved in decisions
  - Improved level of stakeholder support
  - More opportunities for public involvement and education

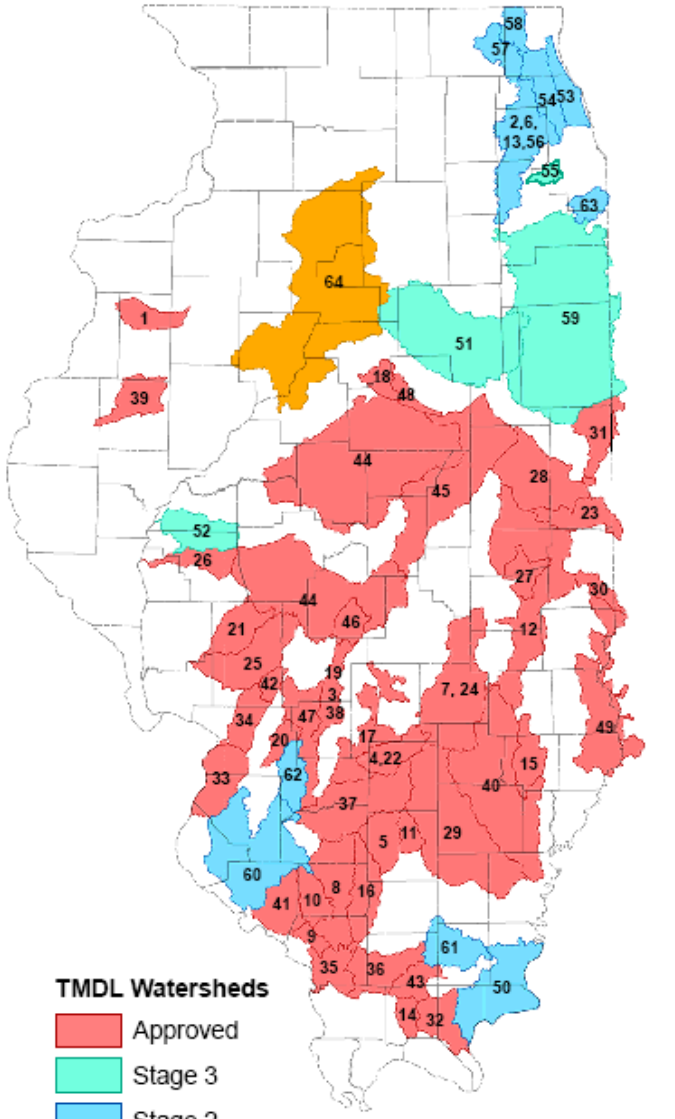
# Stage 3 Public Meeting

- Final public meeting held to inform stakeholders of report.
- Report will be Public Noticed in local newspapers, on IEPA website.
- 30-day comment period
- Responsiveness Summary must be developed

# Submit to USEPA for Approval

- After the public comments have been addressed and any changes made to the report as a result, the report is sent to USEPA Region V in Chicago for approval.
- Additional changes may need to be addressed based on their comments.
- TMDL is *not* complete until approved

# Illinois EPA TMDL Watersheds




| Year Started | Index | Watershed |
|---|---|---|
| 2000 | 1 | Cedar Creek |
| | 2 | DuPage River- E. Branch |
| | 3 | Governor Bond Lake |
| | 4 | Kaskaskia River - E. Fork |
| | 5 | Rayse Creek |
| | 6 | Salt Creek |
| 2001 | 7 | Altamont New Reservoir |
| | 8 | Beaucoup Creek |
| | 9 | Big Muddy River |
| | 9 | Big Muddy River |
| | 10 | Bonnie Creek |
| | 11 | Casey Fork |
| | 11 | Casey Fork |
| | 12 | Charleston SCR |
| | 13 | DuPage River- W. Branch |
| | 14 | Dutchman Creek |
| | 15 | Fox River |
| | 16 | Little Muddy River |
| | 17 | Vandalia Lake |
| 2003 | 18 | Evergreen Lake |
| | 19 | Glen Shoals/ Hillsboro Old Lakes |
| | 20 | Highland Silver Lake |
| | 21 | Hodges Creek |
| | 22 | Kaskaskia River- N. & E. Fork |
| | 23 | Little Vermilion R./ Georgetown Lake |
| | 24 | Little Wabash River |
| | 25 | Macoupin Cr./ Carlinville Lake |
| | 26 | Mauvaisse Terre Lake & River |
| | 27 | Oakland/Walnut Point Lakes |
| | 28 | Salt Fork Vermilion River |
| | 29 | Skillet Fork |
| | 30 | Sugar Cr. / Paris Twin Lakes |
| | 31 | Vermilion R.-N. Fork/ Vermilion Lake |
| 2004 | 32 | Bay Creek |
| | 33 | Cahokia Canal/ Horseshoe Lk |
| | 34 | Cahokia Cr/ Holiday Shore Lk |
| | 35 | Cedar Creek and Lake |
| | 36 | Crab Orchard |
| | 37 | Crooked Creek |
| | 38 | Greenville and Coffeen Lakes |
| | 39 | Lamoine River-E. Fork/ Spring Lake |
| | 40 | Little Wabash River II |
| | 41 | Mary's River/ N. Fork Cox Cr. |
| | 42 | Mt. Olive and Staunton Lakes |
| | 43 | Saline River-S. Fk/ Lake Egypt |
| | 44 | Salt Creek of Sangamon and Lower Sangamon R. |
| | 45 | Sangamon R. / Lake Decatur |
| | 46 | Sangamon R.-S. Fork/ Taylorville Lake |
| | 47 | Shoal Creek |
| 2005 | 48 | Bloomington Lake |
| | 49 | Wabash River |
| 2006 | 50 | Ohio River |
| | 51 | Vermilion (IL Basin) River |
| 2007 | 52 | Ashland Old and New Lakes |
| | 53 | Chicago River- North Branch |
| | 54 | Des Plaines/ Higgins Creek |
| | 55 | Tampier/ Saganashkee Lakes |
| | 56 | Dupage River/Salt Creek |
| | 57 | Fox River |
| | 58 | Fox River-Upper/Chain of Lakes |
| | 59 | Kankakee/Iroquois River |
| | 60 | Kaskaskia River-Lower |
| | 61 | Saline River- Middle Fork |
| | 62 | Sugar Creek |
| | 63 | Thorn Creek |
| 2009 | 64 | Illinois River (Peoria Area) |

# TMDL Stats

| TMDLs | Watershed Reports | Waters Addressed | Impairments Addressed |
|---|---|---|---|
| Approved | 60 | 198 | 491 |
| Ongoing | 15 | 149 | 303 |
| Next Round | 11 | 49 | 87 |

# TMDL Website


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

# THANK YOU VERY MUCH!