

# Achieving the Clean Water Act Goals

Total Maximum Daily Load Allocations

Or

Nine Element Watershed Plans

# What Initiates a TMDL

- Waterbody classified for best use
- Not supporting best use, listed on 303(d) List of Impaired Waters
- TMDL, or other strategy, must be developed

# What is a TMDL

- Outlines MAX pollution waterbody can receive and still meet water quality standards
- Identifies all the pollutant sources, point and non-point
- Uses modeling to determine total reductions necessary
- Assigns reductions per source
- Optional: Develops implementation plan listing actions needed to achieve goals

# What's in a TMDL

- Land Use
  - Forests, development, pasture, wetlands
- Water Quality Data
- Description of sources of pollution
  - Residential septics, wastewater plants, agriculture, industry
- Annual Rainfall Data
- Watershed Descriptors
  - Area, topography, geology
- Waterbody Descriptors
  - Depth, Size

# Who Develops the TMDL

- DEC is responsible for development.
- Stakeholders provide information during plan development
- Public Review and Comment Period
- US EPA approves the plan

# What Initiates a TMDL

- Waterbody classified for best use
  - Cayuga Lake is drinking water, which by definition encompasses all other uses such as fishing and contact recreation. Water quality standards developed to help determine if best uses are met.
- Not supporting best use, listed on 303(d) List of Impaired Waters
  - Cayuga Lake determined to not meet water quality standards. Specifically having phosphorus in levels causing algal blooms based on visual reports and total phosphorus samples collected during storm events and in shallow mixing zones.
  - Cayuga Lake also listed for sediments and pathogens. Newer data on pathogens reviewed resulting in removal of pathogen listing. Sediment inputs have not been addressed.
- TMDL, or other strategy, must be developed



# It's not that Simple

- Waterbody classified for best use
  - Clean Water Act pre-dates requirement for filtered and chlorinated water supplies
  - Clean Water Act pre-dates swimming beach standards
  - Clean Water Act presumes Drinking water is the hardest to achieve, so all other uses should be met when drinking water requirements are met
  - Cayuga Lake's 'best use' is drinking water. It is meeting that standard
- Not supporting best use, listed on 303(d) List of Impaired Waters
  - The south end of Cayuga Lake 'became unswimmable' with the advent of swimming beach standards.
  - The water quality did not decline, the bar for acceptable water was raised.
  - There was also considerable press about a new construction project, Lake Source Cooling. Some feared there would be a negative impact on water quality and pressed for a TMDL to stop the project.
- TMDL, or other strategy, must be developed
  - DEC began developing a phosphorus TMDL in 2012.
  - While 'other strategies' are referenced as an option, there was no clear alternative practice in place at the time.
  - Cayuga Lake's situation is not unique. Many waterbodies do not fit comfortably into the TMDL program now that point source pollution has been greatly reduced.

# What is a TMDL

- Outlines MAX pollution waterbody can receive and still meet water quality standards – this is slightly different than meeting its best use.
  - May result in further restrictions on activities regulated by DEC (discharge permits, stormwater permits, etc.).
- Identifies all the pollutant sources, point and non-point
- Uses modeling to determine total reductions necessary
  - Watershed: SWAT (Soil & Water Assessment Tool)
  - Lake: Cayuga Lake Water Quality Model, based on CE-QUAL-W2, enhanced/modified by Upstate Freshwater Institute to incorporate mussel metabolism and bioavailability of different forms of phosphorus
- Assigns reductions per source
- Optional: Develops implementation plan listing actions needed to achieve goals



# Who Develops the TMDL

- DEC is responsible for development.
  - Often rely on permitted entities to collect data.
  - Lake Source Cooling contracted with Upstate Freshwater Institute
- Stakeholders provide information during plan development
  - Monitoring Partnership
  - SWCD
  - TAC and MEG
- Public Review and Comment Period
- US EPA approves the plan
  - If EPA does not approve the plan, then EPA writes a plan

# TMDL Outcomes

- Identify Pollution sources with most impact
- Identify practices targeting sources
- Describe specific actions needed to achieve goals
  - Repair or replace septic systems
  - Sewer a community
  - Manage aquatic plants
  - Stricter limits for discharge permits
  - More restrictive construction requirements
  - Improve agricultural practices
- DEC modifies permits and enforces requirements for regulated activities
- Municipalities and Organizations encouraged to tackle non-regulated activities
- Increases likelihood of funding for water quality projects

# What is a 9E Watershed Management Plan

- Newer approach to non-point source pollution
- Details a community's water quality concerns
- Key stakeholders are involved in the planning process
- Restoration and protection strategies are identified
- DEC approves plans

# What Initiates a 9E Plan

- Encouraged, not required, by DEC when nonpoint sources of pollution threaten a waterbody
  - Owasco Lake harmful algae blooms prevalent for a number of years
  - Toxins found in drinking water in 2016
  - No large DEC regulated activities in watershed for a TMDL to target
- DEC and the Finger Lakes HUB are working with local stakeholders to develop Owasco Lake's plan

# Steps A-C in a 9E Plan

- A. Identify and Quantify sources of pollution
- B. Identify the water quality goal and reduction needed to meet the goal
- C. Identify best management practices needed to achieve reductions
  - i. In this scenario there are no permits or DEC regulated activities to use to achieve goals. Best Management Practices are the common alternative for targeting non-point source pollution

# Steps D-F in a 9E Plan

- D. Describe financial and technical assistance needed to implement Best Management Practices
- E. Describe stakeholder role in development of plan and implementation
- F. Estimate schedule for implementation of best management practices



# Steps G-I in a 9E Plan

- G. Describe milestones and estimate timeframes for implementation
- H. Identify criteria used to track water quality improvement
- I. Describe the monitoring plan

# Information Needed for a 9E Plan

- Land Use
    - Forests, development, pasture, wetlands
  - Water Quality Data
  - Description of sources of pollution
    - Residential septics, wastewater plants, agriculture
  - Watershed Descriptors
    - Area, topography, geology
  - Waterbody Descriptors
    - Depth, Size
- Annual Rainfall Data

# 9E Plan Products

- Identify and practices targeting sources
- Describe specific actions needed to achieve goals
  - Repair or replace septic systems
  - Sewer a community
  - Manage aquatic plants
  - ~~• Stricter limits for discharge permits~~
  - ~~• More restrictive construction requirements~~
  - Improve agricultural practices
- Funding needed to complete work
- Increases likelihood of funding for water quality projects

# To Summarize:

## 9E Plans v. TMDLs

Feature	9E Plan	TMDL
Pollutant sources	Better for Nonpoint	Better for Point (regulatory)
Public comment period	No (public participation throughout)	Yes
Implementation	Required	Optional
Approval	NYS DEC	EPA
Funding	Eligible for state & federal	Eligible for state & federal

# Other Plans

- DOS Watershed Plans
  - Owasco Lake has one
  - Cayuga Lake has one
  - Watershed Summit 4/19/18, Seneca Falls
- HABs Action Plans
  - 12 Targeted lakes getting, Cayuga and Owasco are included
  - Out for review in May

# Cayuga Lake is getting a TMDL

- Look for it and review it
- Make sure your municipal government or organization reviews it
- Provide comments
- Look for ways to participate in implementation