



Department of
Environmental
Conservation

VISION APPROACH

to implement the Clean Water Act 303(d) Program and
Clean Water Planning

December 2015

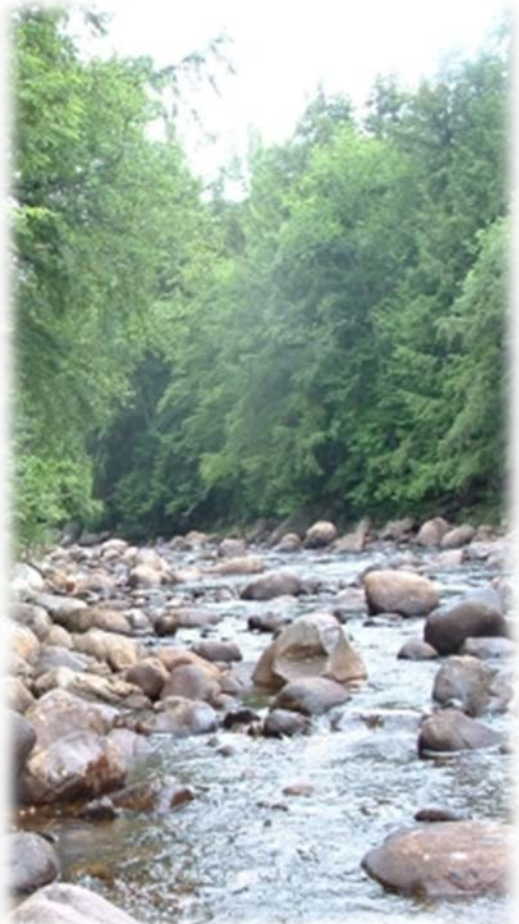


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Executive Summary

Background information

In the past, the Clean Water Act 303(d) program focused on point sources and many of the total maximum daily load (TMDL) plans completed by New York State Department of Environmental Conservation (DEC) and other states were directed or “assigned” by Environmental Protection Agency (EPA). States had very little flexibility to select waterbody priorities and often the waterbodies chosen for TMDL plans did not align with state priorities.

Recently, through a collaborative process with states, EPA identified a long term vision and goals to: enhance program efficiency, focus on state priority waters, provide flexibility to use tools beyond TMDLs, encourage states develop strategies, and new measures to track success.

States have been charged with developing their own strategy following the long-term vision and six goal statements identified by EPA to improve the implementation of CWA 303(d) programs.

EPA's six goals:

1. Systematically prioritize waters for restoration and protection (prioritization)
2. Assess water quality in state's priority areas (assessment)
3. Priority waters include impaired and unimpaired (protection)
4. TMDLs and alternative approaches adaptively implemented (interim alternatives)
5. Engage the public and stakeholders (engagement)
6. Coordinate with federal and state programs (integration)

NY's Vision Strategy

NY's strategy to prioritize waterbodies on the CWA 303(d) list for clean water planning (TMDLs, watershed plans, permit modifications, long term control plans) is adaptive and systematic, builds on and improves the existing 303(d) program, is based on data collected by DEC, integrates information from other Division of Water (DOW) programs, incorporates alternative plans when applicable, fosters new partnerships and enhances existing partnerships. DEC envisions that elements of its strategy will evolve over time as priorities, technology, and information change. NY's approach has three critical parts that integrate EPA's six goals:

1. Determination of the priority concerns
2. A process to assess, prioritize, evaluate, identify and fill information gaps and;
3. Development of work plans and schedules to complete TMDL or watershed plans (or other instruments where appropriate).

Priority Concerns

Priority concerns were determined by evaluating the type and proportion of impaired segments listed on the 2012 CWA 303(d) impaired waters list. For the 2015-2022 time period, DEC's priority concerns are impairments caused by nutrients (nitrogen and phosphorus), low dissolved oxygen, and pathogens that affect public health, specifically waterbodies with active public water supply, public bathing beaches or where contact recreation is the primary use.

Prioritization Process

The process is flexible; criteria may be changed or weighted depending on the priority concern or type of waterbody.

The process includes:

1. Rank waterbodies by priority (specific for each classification)
2. Evaluate the level of impairment
3. Select waterbodies
4. Determine feasibility
5. Analysis of selected waterbodies

Criteria used to assess and score the impaired waterbodies were selected based on the DEC's priority concerns and data accessibility. The waterbodies were ranked and scored within the different classification groups: Class A and B ponded waters, Class SA, SB, I (saline waters) and all classifications of rivers and streams. In general, the greater the negative impact to the impaired waterbody the higher the score.

Example of criteria used:

- Number of related pollutants
- Number of uses impaired
- Phosphorus and chlorophyll-a concentrations
- Active public water supply
- Population served by public water supply
- Public access to the waterbody
- Ecological importance
- Trout/trout spawning
- Biological impairment
- Incidence of blue-green algae blooms (HABs)

A prioritized list of waterbodies for each classification group was generated and evaluated to determine the feasibility of TMDL or alternate plan and to assess the recovery potential. This included discussions with DOW program staff, regional staff and other state agencies; identification of data gaps or limitations, existing plans or models, strong public interest; evaluation of the level of effort/complexity of modeling; number of impaired segments geographically or hydrologically connected; and assessment of the potential sources, pollutant loadings, and estimation of reductions needed to achieve water quality standards using TMDL-Lite Screening Tool.

Workplan Development

Completion of this process produced a short list of high priority waterbodies to develop a TMDL work schedule to submit to EPA for 2016-2022.

Recovery Tracking

In addition to prioritizing waterbodies for planning, DEC plans to track the recovery (progress toward water quality improvement) of waterbodies within the “vision” strategy.

Guidance and Resources

The following guidance and resource materials are included as Appendices in this document:

Appendix A: Prioritization Process

Appendix B: Criteria Descriptions and Scoring

Appendix C: TMDL Milestones and Estimated Duration

Appendix D: TMDL Model Resources

Appendix E: TMDL-Lite Screening Tool

Appendix F: TMDL or Interim Alternative Clean Water Plan Outreach Milestones

Appendix G: Wastewater Funding Opportunities for TMDL Implementation

Appendix H: Nonpoint Source Funding Opportunities for TMDL Implementation

Appendix I: New Long-Term Vision for Assessment, Restoration and Protection under the Clean Water Act Section 303(d) Program: Vision, Goals, and Implementation Plan

Purpose of the Document

The purpose of this document is to describe New York State Department of Environmental Conservation (DEC) Division of Water's (DOW) approach to implementing EPA's new Vision for CWA 303(d) Programs and provide guidance and templates to assist DOW staff that are responsible for planning, developing and executing the Clean Water Act (CWA) 303(d) program.

Overview of EPA's Clean Water Act 303(d) Program Vision

EPA has identified six goal statements that will help to achieve a more strategic way to improve and protect water quality to improve the implementation of the Clean Water Act (CWA) 303(d) program (see Appendix H for a detailed description of EPA's Vision for CWA 303(d) program).

The six goal statements:

1. **Prioritization**—systematically prioritize, and report priority watersheds or waters for restoration and protection for reporting and strategic planning
2. **Assessment**—identify the extent of healthy and impaired waters in priority watersheds or waters through site-specific assessments
3. **Protection**—identify protection planning priorities and approaches along with schedules to help prevent impairments in healthy waters consistent with the state's overall systematic prioritization
4. **Interim Alternatives**— in addition to TMDLs, identify and implement alternate approaches that incorporate adaptive management and/or address specific circumstances that are better first steps to achieve water quality goals
5. **Engagement**—actively engage the public and stakeholders to improve and protect water quality; document inclusive, transparent, and consistent communication
6. **Integration**—identify and coordinate implementation of key point source and nonpoint source control actions that promotes effective integration across CWA programs, statutory programs, and water quality programs of other federal agencies

NY's Strategy to Implement EPA's New Vision

The DEC integrated the six goals into an adaptive and systematic strategy to prioritize and develop clean water plans that will improve quality for waterbodies on NY's 303(d) list of impaired waterbodies. DEC envisions that elements of its strategy will evolve over time as priorities, technology, and information change. In addition, DEC has included development of implementation plans as a critical part of effective and efficient water quality improvement. This emphasis on implementation is consistent with the EPA non-point source program emphasis on 9 Key Element Watershed Plans.

The cornerstones of effective water quality improvement are prioritization, engagement and integration and form their own helix of refinement, correction and clarification. DEC has woven the goals of protection, alternatives and assessment into the approach within these goals.

NY's strategy fosters opportunities for collaboration and integration with other CWA programs, particularly the nonpoint source program, and has designed the approach to be flexible to meet the water quality priorities for restoration and protection.

NY's strategy includes building on and improving the existing 303(d) program and developing new processes, incorporating alternative plans when applicable, fostering new partnerships, as well as nurturing existing partnerships. The chief clean water planning tool of the 303(d) program is the total daily maximum load (TMDL) plan. When appropriate, DEC will continue to use other interim alternative tools to lay the groundwork for restoring water quality. Interim

alternatives tools include, but are not limited to: 9 Key Element Watershed Plans, Combined Sewer Overflow Long Term Control Plans, direct SPDES permit limitations, Consent Orders and others. Any of these plans may be called Clean Water Plans: : a watershed based strategy to improve water quality. However, the term that is most recognizable to target audiences would be used throughout the plan process.

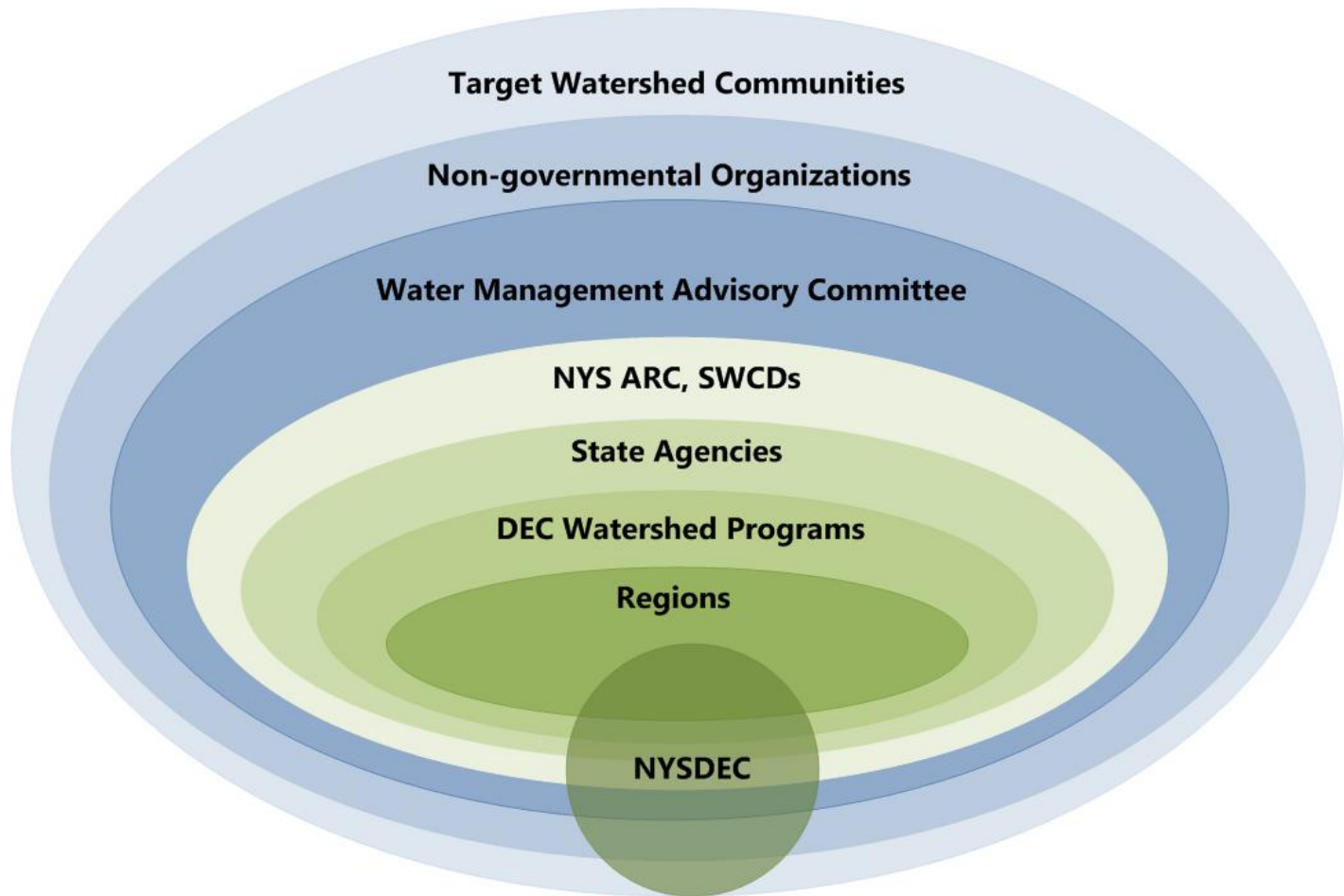
Engagement is critical for all aspects of NY's strategy. DEC plans to involve stakeholders throughout the process as waterbodies are prioritized, selected and restoration and protection plans are drafted. DEC will build on demonstrated watershed based programs in the Great Lakes, Susquehanna-Chemung, NYC Reservoir watersheds and other basin programs that use and integrate control actions from federal, state and local authorities.

In addition, DEC will solicit feedback on the priority waterbodies identified, learn about specific waterbody concerns and data, and gage local interests to assess recovery potential through successive engagement and where possible, integration with stakeholders connected to the impaired waterbodies (Figure 1).

Specifically, DEC may seek input from and, when possible, collaborate with multiple stakeholders, including:

- NYS DEC Division of Fish and Wildlife
- NYS Department of Health
- NYS Department of State
- NYS Department of Agriculture and Markets
- NYS Association Regional Councils
- NYS County Soil and Water Conservation Districts
- Community Watershed Groups

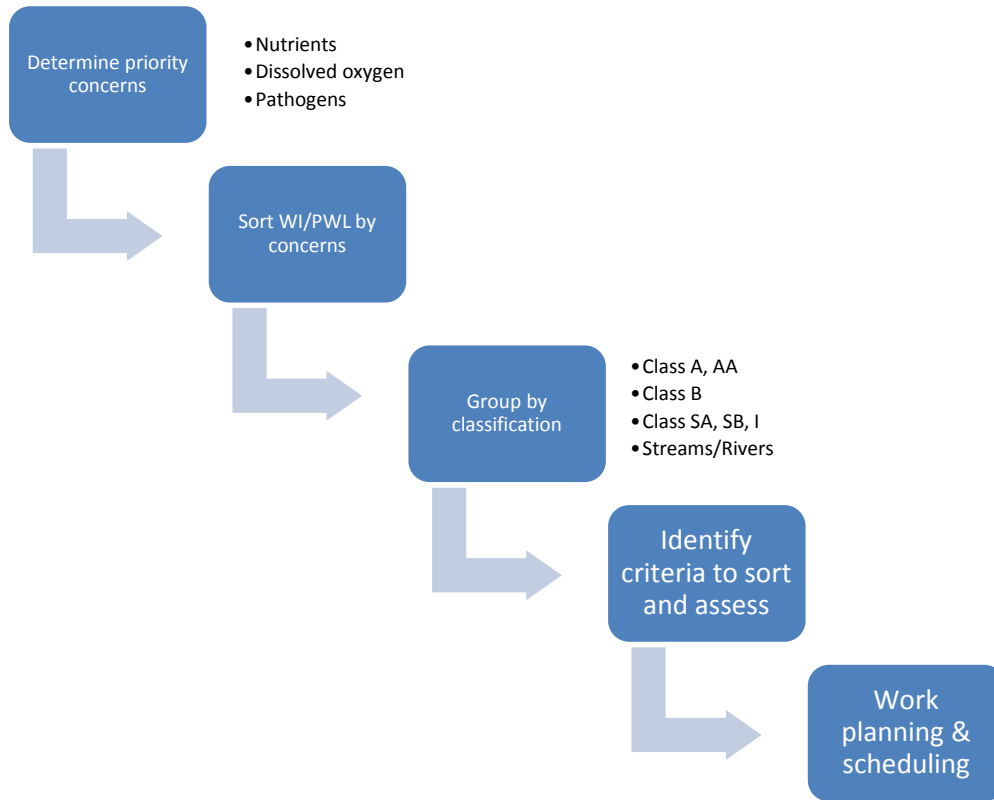
Figure 1. Graphic illustrating the successive engagement and integration within NY's strategy.



The prioritization goal is a key goal of the vision and is intimately connected to the other five goals and is where DEC has focused its approach. DEC's overall approach to incorporate the vision goals includes (Figure 2):

1. determination of priority concerns based on the types of impairments on the 303(d) impaired waters list;
2. a process to assess, prioritize, evaluate, identify and fill information gaps and;
3. development of work plans and schedules to complete TMDL or watershed plans (or other instruments where appropriate).

Figure 2. Overview of NY's strategy to implement EPA's new Vision for the CWA 303(d) program.



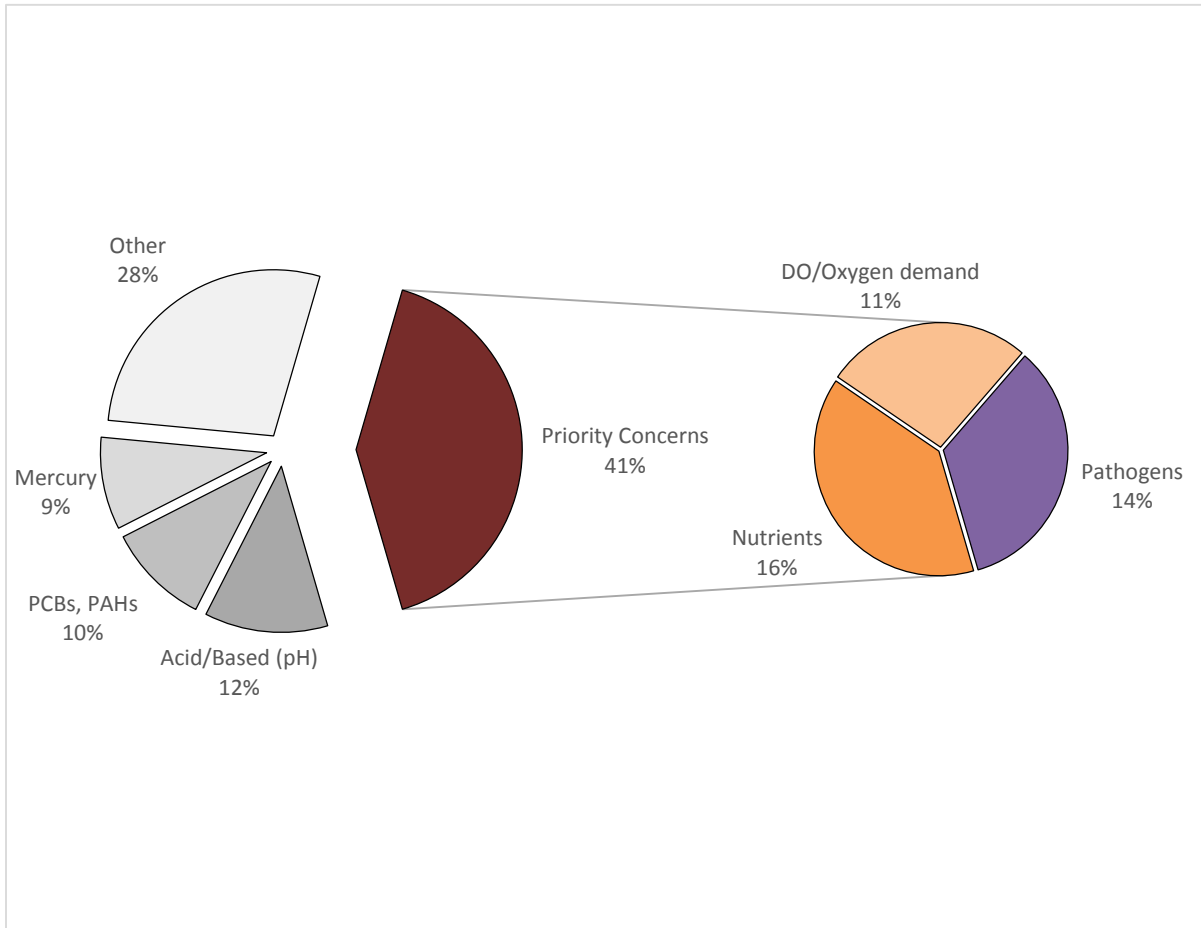
Determination of priority concerns

Priority concerns were determined by evaluating the type and proportion of impaired segments listed on the 2012 CWA 303(d) impaired waters list. There were 1186 listings with 45 possible impairment types. The 1186 listings were comprised of 763 unique waterbody segments, of these 246 segments were listed for multiple impairments.

Approximately 40% of the 1186 listings, including segments with multiple impairments, indicated nutrients, pathogens and/or DO/oxygen demand (Figure 3) as the impairment. These impairments may be addressed at the watershed level where the likelihood of implementing a plan (or plans) that will achieve water quality improvements is greatest. The remaining 60% of the impairments are at the landscape level, for example, legacy contamination (PCBs), atmospheric deposition, restricted passage and species problems.

For the 2015-2022 time period, DEC's priority concerns are impairments caused by nutrients (nitrogen and phosphorus), low dissolved oxygen, and pathogens that affect public health, specifically waterbodies with active public water supply, public bathing beaches or where contact recreation is the primary use.

Figure 3: Percent of 2012 segments for each impairment category



Given the priority concerns, waterbodies can be sorted by waterbody type or classification to identify the criteria best suited to rank and assess the waterbodies (Figure 2). For example, not all criteria used to prioritize ponded waters was applicable or meaningful for ranking and assessing flowing waters.

Prioritization process

DEC developed a process to assess, evaluate, and identify data gaps and limitations to plan and schedule TMDL and interim alternative plan development. The process is flexible and there is the ability to change or weight criteria depending on the priority concern or type of waterbody. Also, the process incorporates all six EPA vision goals, with engagement, interim alternative plans, and integration as key elements to be addressed early in the process.

The process includes:

1. Rank waterbodies by priority (specific for each classification)
2. Evaluate the level of impairment
3. Select waterbodies
4. Determine feasibility
5. Analysis of selected waterbodies

The first step is to screen the list of potential waterbodies within each classification to assess the public and ecological impact of the impairment.

The second step is to evaluate the level of impairment relative to the waterbodies within the classification. For example, a waterbody with phosphorus concentrations exceeding 100 µg/L compared to a waterbody with phosphorus concentration of 50 µg/L may be ranked higher.

The third step is the process of selecting and discussing the ranked waterbody lists. This step may involve organized discussions with other state and interstate agencies (e.g., NYS Department of State, NYS Department of Health, NYS Department of Agriculture and Markets) and DEC programs to identify: data limitations and gaps, opportunities to partner with other programs, additional sources of data, existing projects or activities, and public interest within the impaired watersheds. This information is documented for use in future planning, as needed.

In the fourth step, selected waterbodies are evaluated to determine the feasibility of developing a TMDL or 9 Key Element Watershed Plan (or other interim alternative plan) and the waterbody's recovery potential. The impaired segment's watershed size, proximity to other impaired segments, and public interest within the target watershed area may be assessed. This assessment requires more detailed analysis of the waterbody. This evaluation process may include regional staff, other state or federal agencies (e.g., NYS Department of State, NYS Department of Health, DEC Division of Fish and Wildlife, NYS Department of Agriculture and Markets) to determine if existing plans or models are available, learn about other water quality activities within the waterbodies, and identify opportunities for collaboration.

The fifth step involves more detailed assessment that may include: analysis of pollution sources, identification of existing watershed plans or water quality improvement activities, analysis of the financial benefits to the community (economic significance or improve eligibility for funding), and consultation with monitoring and assessment staff to develop a work plan and schedule.

See Appendix A for a more detailed description of the process steps and components.

Selection of criteria for prioritization process (Steps 1 and 2)

The criteria used to assess and score the impaired waterbodies were selected based on the DEC's priority concerns and data accessibility. The waterbodies were scored and ranked within the different classification groups: Class A and B ponded waters, Class SA, SB, I (saline waters) and all classifications of rivers and streams.

In general, the greater the negative impact to the impaired waterbody the higher the score. For example, impaired waterbody segments with three related impairments will be given more points in the related impairments metric than a waterbody segment with only one impairment. When a metric is identified as a critical measure of the impact of the impairment on the waterbody a multiplier may be used to increase the relative importance of that metric.

The scoring criteria for each of the classification groups will then be reviewed by DEC staff and revised based on the feedback. This part of the prioritization process produces a short list of the highest priority impaired segments.

DEC anticipates that the metrics and/or scoring will undergo regular review by staff as the priority concerns change, new information or technology becomes available, or modeling resources are developed.

See Appendix B for current metrics, scoring criteria, point system and metric descriptions for each of the classification groups.

Work plan and scheduling (Steps 3, 4 and 5)

The ranked and scored lists produced in Steps 1 & 2 are evaluated to determine the feasibility of completing a TMDL or an interim 9 Key Element Watershed plan, or other interim alternative clean water, including protection and restoration plans. This included discussions with DOW program staff, regional staff and other state agencies, and assessment of the potential sources, nutrient loadings, and estimation of reductions needed to achieve water quality standards using TMDL-Lite Screening Tool. In addition, the following information was evaluated to produce a short list of high priority waterbodies to develop a TMDL work schedule:

- Data gaps or data limitations,
- The monitoring and assessment schedule,
- Any existing watershed plans or models,
- Strong public interest and/or existing local management activities (e.g., a community that has just been sewerred),
- The level of effort /complexity of model required,
- The number of impaired segments geographically or hydrologically connected to the waterbody,
- The pollutant(s),
- The score and rank on the lists from Steps 1 & 2
- The estimated number FTEs required to complete

Draft TMDL Work Schedule for 2016-2022

The TMDL or 9-Key Element Watershed, or other interim alternative clean water restoration plan work schedule was based on the level of effort for the development of a small lake phosphorus TMDL (estimated FTEs). The amount of time needed to complete TMDLs for other types or sized waterbodies will need to be adjusted depending on many variables including, but limited to:

- The availability of an existing numeric water quality criteria
- Data needs for the target watershed (e.g., multiple years)
- Complexity of the appropriate model (e.g., flowing waters, coastal waters)
- Community interest or involvement
- Availability of staff to complete TMDLs
- Contracting with consultants (if needed)
- Additional DEC staff resources—outreach, QAPP approval process, permit staff, monitoring and assessment staff, regional staff, other DEC division staff

Work Schedule for 2016-2022

Waterbody Name	Pollutant
Oak Orchard Creek	Phosphorus, oxygen demand
Conesus Lake	Phosphorus, oxygen demand
Honeoye Lake	Phosphorus, oxygen demand
Cayuga Lake	Phosphorus
Owasco Lake	Phosphorus
Mohawk River	Phosphorus
Lake Carmel	Phosphorus
Lake Ronkonkoma	Phosphorus, pathogens
Western Bays	Nitrogen
Great South Bay	Nitrogen, pathogens
Forge River	Nitrogen
Northport Harbor Complex	Nitrogen

Clean Water Plan Recovery Tracking

DEC is developing a database to track water improvements achieved through implementation of Clean Water Plans. The database will include, but is not limited to, the following: date of plan, type of impairment(s), reductions needed by pollution source category, implementation recommendations, status of implementation progress, water quality baseline, and water quality data results overtime. The database may be used to: prioritize monitoring locations and permit modifications; track/map the distribution and amount of funding awarded for implementation; identify potential EPA success stories; and evaluate waterbody’s progress toward water quality improvement.

Guidance and Resources

Guidance material and templates were developed to support and assist with implementation of NY’s vision strategy.

Appendix A: Prioritization Process

Appendix B: Criteria Descriptions and Scoring

Appendix C: TMDL Milestones and Estimated Duration

Appendix D: TMDL Model Resources

Appendix E: TMDL-Lite Screening Tool

Appendix F: TMDL or Interim Alternative Clean Water Plan Outreach Milestones

Appendix G: Wastewater Funding Opportunities for TMDL Implementation

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Appendix I: New Long-Term Vision for Assessment, Restoration and Protection under the Clean Water Act Section 303(d) Program: Vision, Goals, and Implementation Plan

Appendix A: Prioritization Process

Table 1 provides an overview of the prioritization process. The criteria in the tables below are broad in scope. However, there are some unique criteria, which, capture the best designated uses (.e.g., public drinking water source, shellfishing, and trout/trout spawning) for each waterbody type or class. The intention of this process is to be adaptive and flexible; both the criteria and steps may be revised in the future.

This process will allow DEC to select goals, establish priorities and set schedules that are progressive, i.e., allowing for reassessment and reprioritization. The purpose of steps 1-3 are to rank and prioritize the entire 303(d) list, identifying a subset of the list for a more detailed analysis in steps 4 and 5. The approach DEC established is to first identify priorities, then evaluate level of impairment, in order to select waterbodies. Once significant waterbodies have been determined the next steps are to determine if a plan is feasible, and further analyze selected waterbodies for development of a watershed/waterbody improvement strategy (e.g., TMDL or interim alternative clean water plan).

Table 1.

Step 1: Rank by priorities	Step 2: Evaluate impairment level	Step 3: Select Waterbodies	Step 4: Determine feasibility of TMDL	Step 5: Analysis selected waterbodies
Active public water supply (PWS) ¹	Harmful algal blooms (HAB) ³	Rank list and select priority waterbodies ⁶	Connectivity ⁹	Pollutant source analysis ¹²
Population served by PWS ²	Multiple use impairment ⁴	Identify & document limitations ⁷	Watershed size ¹⁰	Data assessment to determine schedule ¹³
Ecological importance ¹⁷	Multiple pollutant impairments ⁵	Consult with staff ⁸	Public interest ¹¹	Existing watershed plan or similar plan ¹⁴
Class ¹⁸	Beach closures ²¹			Identify financial benefits ¹⁵
Public access ¹⁶	BAP Score ¹⁹			
Population ²⁰				

FOOTNOTES

- 1. Active PWS:** Is the waterbody an active public water supply?
- 2. Population served by PWS:** Population served by the public water supply.
- 3. HAB:** Are Harmful Algae Blooms (HABs) occurring every season, the number weeks that HABs have been reported.
- 4. Multiple use impairment:** Number of use impairments. This should be related to the targeted pollutants of concern, e.g., fish consumption because water is impaired for mercury.
- 5. Multiple pollutant impairment:** Number of pollutant impairments. Similar to use impairments. Impairments should be related, e.g., silt and sediment could be related to a phosphorus impairment.
- 6. Rank list and select priority waterbodies:** Ranked and prioritized lists should be used to select the priority waterbodies which will undergo further consideration.

7. **Identify & document limitations:** The type of pollutant and other factors relating to the surface water or segment make the TMDL very complex, e.g., level of effort, or the type of model required. Availability of technology and resources to correct the problem.
8. **Consult with staff:** DEC staff outside the Clean Water Planning program to provide additional information on identified priority waterbodies.
9. **Connectivity:** How is the system defined (what is the extent of the problem?). For example, information is consider: are there multiple impaired segments in the watershed, are the impaired segments connected, the waterbody connected to an important resource such as a tributary to drinking water source.
10. **Watershed size:** Relative size of watershed, e.g., area, number of HUC 12 or catchments.
11. **Public interest:** Significant public interest and support for restoration or development of a watershed improvement plan. Active groups are present, e.g., citizen science groups, or lake management activities. Has the community demonstrated readiness for a TMDL, planning and implementation? Are actions or voluntary programs currently in place to control the problem?
12. **Pollutant source analysis:** Depending on the number of waterbodies this can either be completed at the end of step 3 or the beginning of step 5. This analysis should characterize the watershed, including land use and known sources of pollution (point and nonpoint). The purpose is to determine the restoration potential, i.e., is the waterbody/watershed going to recover through the implementation of a TMDL.
13. **Data assessment to determine schedule:** Inventory and evaluate existing data to characterize watershed/waterbody conditions to generally assess overall water quality. Identify (1) data gaps, (2) age of data, (3) number of years with data, (4) Severity, magnitude, and duration the surface water quality standard (s) that are exceeded. Based on this evaluation determine relevant monitoring schedule. Consider whether delaying development of a TMDL could provide the ability to gather data which could strengthen the development and implementation of the TMDL.
14. **Existing watershed plan or similar:** Determine if a watershed plan or other clean water restoration plan has been completed by an interested group (e.g., local agency, watershed management group). The scope and source of the plan should be considered, e.g., the plan was funded through the NYS Department of State.
15. **Identify financial benefits:** Will a plan enhance opportunity/eligibility for funding or does the waterbody have important recreational and economic significance to the public, e.g., ecotourism, fishing derby?
16. **Public access:** Does the waterbody have beach access, fishing access, boat launches, adjacent to public parks or other features which encourage the public to interact with the waterbody?
17. **Ecological importance:** Any threatened/endangered/rare species or habitats, or any avian and aquatic migration pathways within the watershed?
18. **Class:** Prioritize by class. Is the water classified to be suitable for trout or trout spawning? Is the impairment related to the trout/trout spawning designation? Is the waterbody a class A, which is not a public water supply?
19. **BAP Score:** Biotic assessment profile score generated by the DEC Stream Biomonitoring Unit which provides an overall measure of water quality in flowing waters.
20. **Population:** Relative measure of the extent to which the public is impacted by the impairment
21. **Beach Closures:** Number of closures, duration of closures, reason for closures, e.g., preventive closure due to storm or closed due to elevated bacteria.
22. **Shellfishing closures:** Consider closure size and duration, e.g., seasonal or year round closure. Note: not all closed areas are sampled once closed due to limited resources. Seasonal closures may have more sampling data. Verification of reason of closure (use conflicts), e.g., some closures are administrative (too many boats, WWTP discharge).

Appendix B: Criteria Descriptions and Scoring

Tables 1-4 describe the criteria and scoring that was used to rank and prioritize impaired waterbodies for each classification or waterbody type grouping. The criteria and scoring in Tables 1-4 may be revised in the future as the criteria and/or scoring undergo regular review by staff or as the priority concerns change, new information or technology becomes available, or modeling resources are developed.

Table 1. Class A

Criteria	Response	Points	Qualitative	Description
Public water supply (PWS)	Y	1		Waterbodies with active PWS
	N	0		
Population served	0	0		The greater the population served the greater the public impact and potential for implementation. Range is based on the PWS waterbodies listed on the 303(d) list; scoring range may need be adjusted for future analysis.
	1-10000	0.25		
	10001-50000	0.5		
	50001-150000	0.75		
	>150000	1		
Harmful Algae Bloom (HAB)	0/0	0		No reports
	1/1	0.25		One report, one year only
	>1/1	0.5		More than one report, one year only
	>1/>1	1.5		At least one report for multiple years
Number of related impairments	1	0.25	Less connected	How many individual impairments can likely be addressed by a single TMDL (e.g. nutrients, DO, pathogens, silt/sediment). Max of 4 related impairments in this list set point range. Max of 4 related impairments in this list set point range.
	2	0.5		
	3	0.75		
	>3	1	More connected	
Number of uses impaired	0	0	No uses impaired	Up to 6 uses are evaluated in waterbody assessment, but in most cases no more than 4 are likely to be related. Most waters have 2 or less related uses impaired. (water supply, recreation, fishing, aquatic life, aesthetics, habitat)
	1	0.25		
	2	0.5		
	3	0.75		
	>3	1	Multiple related uses impaired	
Chl-a concentration from LCI and CSLAP	<6	0	Good	June through September average concentration of chlorophyll-a. >30 was used because it is the upper bound of the blue-green algae criteria
	10-19	0.25		
	20-29	0.5		
	>30	1	Poor	
Evidence of health impacts	Yes	1		When data from DOH is available; e.g., DBPs, drinking water advisories
	No	0		

Table 2. Class B

Criteria	Response	Points	Qualitative	Description
TP concentration from LCI and CSLAP	<20	0	Good	June through September average concentration of total phosphorus from available monitoring data
	20-39	0.25		
	40-59	0.5		
	60-79	0.75		
	>80	1	Poor	
Chl-a concentration from LCI and CSLAP	<10	0	Good	June through September average concentration of chlorophyll-a. >30 was used because it is the upper bound of the blue-green algae criteria
	10-19	0.25		
	20-29	0.5		
	>30	1	Poor	
HAB	0/0	0		No reports
	1/1	0.25		One report, one year only
	>1/1	0.5		More than one report, one year only
	>1/>1	1.5		At least one report for multiple years
Access	None	0	Less access	Are the lands surrounding the lake held privately or are there means for general public to access? Are there features which encourage public to access waterbody, e.g. boat ramps, public parks.
	Private	0		
	connected to public land	0.5		
	Public	1	More access	
Number of related impairments	1	0.25	Less connected	How many individual impairments can likely be addressed by a single TMDL (nutrients, DO, pathogens, silt/sediment). Max of 4 related impairments in this list set the point range.
	2	0.5		
	3	0.75		
	>3	1	More connected	
Number of uses impaired	0	0	No uses impaired	Up to 6 uses are evaluated, but in most cases no more than 4 are likely to be related. Most waters have 2 or less related uses impaired. (water supply, recreation, fishing, aquatic life, aesthetics, habitat)
	1	0.25		
	2	0.5		
	3	0.75		
	>3	1	Multiple related uses impaired	
Ecological importance	To be determined			Possible data sources to evaluate ecological importance: state wetlands map; waterbodies with rare, endangered, threatened species-based on natural heritage data, critical habitat, Important birding areas, etc...
Evidence of health impacts	Yes	1		As data from NYS DOH becomes available, information about DBPs, beach closures & what closed for; fish consumption advisories (SA waters).
	No	0		

Table 3. Streams and Rivers

Criteria	Response	Points	Qualitative	Description
Class	A	1	Higher priority	Waterbody classification
	B	0.5		
	C	0.25	Lower priority	
T/TS	TS	2	More protection	Trout (T) or trout spawning (TS) designated stream?
	T	1		
	None	0	Less protection	
Related Pollutants Impairments	1	0.25	Less	How many related impairments could be addressed by a single TMDL?
	2	0.5		
	3	0.75		
	>3	1	More	
Proximity (connectivity)	0	0	Fewer	How many additional contiguous HUC12s are also listed as impaired? Limited to those HUC12s in the same stream network with multiple segments that impaired all for same reasons in same area
	1	0.25		
	2-5	0.5		
	6-10	0.75		
	>10	1	More	
Multiple Use Impairments	0	0	Fewer	How many use impairments will be improved/removed by a single TMDL?
	1	0.25		
	2	0.5		
	3	0.75		
	>3	1	More	
Public Access	None	0	Limited access	No readily apparent means of access for general public
	Private	0		
	Adjacent	0.5		
	Public	1	Easy access	Access encourages: boat ramps, municipal parks, recommended fishing
Ecological Importance	To be determined			As data from NYS DOH becomes available, information about DBPs, beach closures & what closed for.
Biological Assessment Profile (BAP) score	<1.25	1	Worse	Biotic assessment profile data based on macroinvertebrate data
	1.26-2.5	0.75		
	2.6-3.75	0.5		
	3.76-5.0	0.25	Better	

Table 4. Class SA, SB, I

Criteria	Response	Points	Qualitative	Description
Public Access—Beach data availability	Yes	1	Has beach	
	No	0	No beach	
Ecological Importance-- Tidal Wetland Diversity	SM, LZ, FM, IM, HM	1	Most Diverse	SM. Coastal Shoals, Bars and Mudflats. LZ. Littoral Zone. IM. Intertidal Marsh. FM. Fresh Marsh. HM. High Marsh.
	SM, LZ, FM, IM	0.8		
	SM, LZ, FM	0.6		
	SM, LZ	0.4		
	SM	0.2	Least Diverse	
		0	No Habitat	
Public Access/interest— Census Block population	> 16000	0.25	Less people	Summed all census blocks bordering impaired segment.
	16000 ≤ & < 32200	0.5		
	32200 ≤ & < 48300	0.75		
	> 48300	1	More people	
Beach Closures	0/0/0	0	No closures	For multiple beaches on the segment the mode was used to determine the score.
	1/1	0.25	One closure, one year	
	>1/1	0.5	More than one closure, one year	
	>1/>1	1	More than one closure, more than one year	
Multiple Use Impairment	1	0.25	Fewer	Up to 6 uses are evaluated, but in most cases no more than 4 are likely to be related. Most waters have 2 or less related uses impaired.
	2	0.5		
	3	0.75		
	>3	1	More	
Multiple Pollutant Impairment	1	0.25	Fewer	How many individual impairments can likely be addressed by a single TMDL. Max of 4 related impairments in this list set point range
	2	0.5		
	3	0.75		
	4	1	More	
Shellfishing Closures—type of closure	Seasonal	1	Yes/no approach, all closures except holiday receive a point.	Seasonal--why closed? Boats or water quality? If water quality & seasonal ranked higher than annual closure & water quality.
	Annual	1	Data in triennial reports; review with staff to determine the type of closure for the segments	
	Holiday/not closed	0	Not closed/too many boats	

Table 5. Stressed Class As

Criteria	Response	Points	Qualitative	Description
Public water supply (PWS)	Y	1		Waterbodies with active PWS
	N	0		
Population served	0	0	Fewer	The greater the population served the greater the public impact and potential for implementation. Range is based on the PWS waterbodies listed on the 303(d) list; scoring range may need be adjusted for future analysis.
	1-10000	0.25		
	10001-50000	0.5		
	50001-150000	0.75		
	>150000	1	More	
Class	AA (TS/T)	1	Higher priority	Waterbody classification
	A (TS/T)	0.5		
	A	0.25	Lower priority	
Harmful Algae Bloom (HAB)	0/0	0		No reports
	1/1	0.25		One report, one year only
	>1/1	0.5		More than one report, one year only
	>1/>1	1.5		At least one report for multiple years
Number of uses stressed	0	0	No uses impairments	Up to 6 uses are evaluated, but in most cases no more than 4 are likely to be related. Most waters have 2 or less related uses impaired. (water supply, recreation, fishing, aquatic life, aesthetics, habitat)
	1	0.25		
	2	0.5		
	3	0.75		
	>3	1	Multiple related uses impaired	
Chl-a concentration from LCI and CSLAP	<6	0	Good	Average concentration of chlorophyll-a measurements available from LCI program
	10-19	0.25		
	20-29	0.5		>30 was used because it is the upper bound of the blue-green algae criteria
	>30	1	Poor	
Evidence of health impacts	Yes	1		As data from NYS DOH becomes available, information about DBPs, beach closures & what closed for; fish consumption advisories (SA waters).
	No	0		

Appendix C: TMDL or Interim Alternative Clean Water Plan Milestones

This table outlines the major and minor tasks and estimated time (1.5-2 years) needed to complete a basic TMDL plan. The tasks listed were derived from experience completing several small lake phosphorus TMDLs during 2012-2014. It is anticipated that additional tasks and time allotted to complete the plan may be required for large watersheds, flowing waters, and coastal waters. The tasks are generally chronological, although some may be completed concurrently. Some tasks are contingent on completion of previous tasks, as noted.

Task	Description	Estimated Duration (months)	Notes
1	Review waterbody priority lists	1	
1.1	Discuss/coordinate with Monitoring & Permits (individual & general) Staff		
1.2	Monitoring Kickoff meeting		
2	Decision to Do a TMDL or interim alternative clean water plan	-	
3	Scoping/Additional data gathering	1	
3.1	Source Identification/Understand impairment		
3.2	Determine appropriate models		
3.3	Refine data needs		
3.4	Outreach to DEC regional contacts (gather information about local groups)		
3.5	Identify agency partners & local groups		
4	QAPP development	2-4	
4.1	Draft QAPP		Includes development of Sampling and/or Modeling QAPPs
4.2	Submit draft for internal review and comment		
4.3	Finalize and obtain approval of QAPP		
5	Collect target data	4	
5.1	Schedule sampling trips		Sampling QAPP must be written and approved prior to this task
5.2	Conduct sampling		
5.3	Source of impairment verification		
6	Outreach—Internally & Agency Partners (e.g., Soil & Water District, Department of Health, Municipal Officials)	1	
6.1	Meeting with agency partners (inform partners, start aligning coordination)		
6.2	Determine/Develop communication tool for informing the target watershed's property owners (email, postcard, listserv, via partner) ; timing of interactions --seasonal residency		
6.3	Inform target watershed community about TMDL process/meeting info.		
7	Compile TMDL inputs--characterize watershed	2-4	
7.1	Characterize watershed		Modeling QAPP must be written and approved prior to this task

Task	Description	Estimated Duration (months)	Notes
7.2	Delineate watershed boundary		
7.3	Define land use		
7.4	Determine point sources		
7.5	Assess septic systems		
7.6	Define soils, streams, topography		
7.7	Compile/update weather data		
8	Recommended Watershed Community Outreach Meeting - introduction to TMDLs & community input	1-2	
8.1	Plan meeting location, date & time		
8.2	Develop meeting materials & announce meeting		
8.3	Execute meeting		
8.4	Meeting follow-up (ongoing until TMDL completed)		
9	TMDL analysis	4-8	Contingent on completion and approval of modeling QAPP
9.1	Identify critical conditions (temporal variability: seasonal residency, growing season)		
9.2	Calibrate/verify model results		
9.3	Assess source loading		
9.4	Analyze different scenarios to evaluate reasonable assurance for meeting water quality standards		
9.5	Waste load allocation - discuss with Permits Staff		
9.6	Load allocation		
9.7	Margin of safety		
10	Alternative 2nd Watershed Community Outreach Meeting - review of data	5-10 days	Meeting held before draft TMDL is written
11	Complete draft TMDL	2-4	
11.1	Development of implementation plan		
11.2	Development of monitoring plan		
12	Review of Draft TMDL	2-4	Contingent on Task 11
12.1	Internal review		
12.2	EPA review		
12.3	Revise load allocations & implementation text per internal & EPA comments		
13	Public Comment Period	1-2	Contingent on Task 12
13.1	Public notice draft TMDL (ENB)		
13.2	Alternative 3rd Watershed Community Outreach Meeting--explanation of draft		
14	Comment Response	1-2	Contingent on Task 13
14.1	Respond to public comments		
15	Finalize TMDL	2-3	Contingent on Task 14

Task	Description	Estimated Duration (months)	Notes
15.1	Revise draft TMDL to address public comments, submit to EPA for approval		

*Refer to the TMDL or Interim Alternative Clean Water Plan Outreach Guidance document for more information about meetings.

Appendix D: TMDL Model Resources

The TMDL Modeling resource guide is a collection of model factsheets, which provides the necessary information to screen potential models. The purpose of this guide is to assist the TMDL writer to determine an appropriate model. The resource guide is a searchable Adobe portfolio. This resource guide provides factsheets detailing information about the models and their applicability. In addition, the TMDL writer will have the capability to screen models by type, e.g., watershed, hydrodynamic, and water quality, and be able to search by key words such as nitrogen, phosphorus or groundwater modeling capabilities. Potential models factsheets can be reviewed to assess the models. This resource is available for TMDL writers and is located at S:\BWRM\TMDL\Vision\Model Resource Guide\ModelPortfolio.pdf.

Below is a list available additional resources.

EPA's report entitled Model Evaluation and Research Needs

<<http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/upload/600r05149.pdf>>

EPA's report entitled Compendium of Tools for Watershed Assessment and TMDL Development

<http://water.epa.gov/scitech/swguidance/standards/mixingzones/upload/2006_07_19_standards_mixingzone_1997_Tool_Compendium.pdf>

EPA's Watershed and Water Quality Modeling Technical Support Center

<<http://www.epa.gov/athens/wwqtsc/>>

EPA's Center for Exposure Assessment Modeling CEAM

<<http://www2.epa.gov/exposure-assessment-models>>

U.S. Army Corp of Engineers Water Quality Models and Tools

<<http://el.erdc.usace.army.mil/products.cfm?Topic=model&Type=watqual>>

The Hydrologic Engineering Center (HEC)

<<http://www.hec.usace.army.mil/software/>>

Appendix E: TMDL-Lite Screening Tool

Appendix E describes a simple tool that was created to support the DEC vision process. The screening tool may be used to rapidly analyze watershed pollutant source loads and estimate reductions. This analysis tool quantifies the estimated pollutant loads by source and recovery potential. The model is simplistic but provides a reasonable approximation that may be used by DEC staff to effectively evaluate waterbodies for clean water plans.

Introduction

Simple steady state models are average representations of the annual average of natural systems. The TMDL-Lite analysis, which is based on simple steady state models, compiles several simple models into a single screening tool to determine: relative source contribution, waterbody response, and insight into the recovery potential of the waterbody. The models consider an annual average response therefore it is important to understand the limitations of applying simple models to complex natural systems. The intended use of these steady-state models is to screen waterbodies for more efficient work planning and effective water quality improvement.

The purpose of the analysis is to better understand the relative nutrient loads to waterbodies in order to:

- i. Determine if a more detailed assessment is needed,
- ii. Determine the relative benefit of a particular clean water planning mechanism, or
- iii. Evaluate planning actions for TMDLs, alternative restoration approaches, or protection plans, or
- iv. Evaluate recovery potential based on the source and magnitude of the nutrient load

Overview of Analysis and load calculations

This tool is a simple spreadsheet-based approach that evaluates loads from a range of pollutant sources. Components of this analysis include:

1. Watershed loads (e.g., urban stormwater and runoff from agricultural areas)
2. Septic systems
3. Point sources

1. Watershed Loads

The landside portion of the tool estimate the stormwater loads from the watershed. This estimated stormwater load is based on land use, precipitation, and simple hydrology.

Inputs:

- Area (acres) of each land use category in watershed
- Annual rainfall (in), by default the average for New York State (42 inches) is provided.

Output:

- Load of nutrients by land use category (lbs/yr)
- Percent of load contribution by land use category

Calculation Methods and Model Parameters:

The analysis uses two different pollutant loading equations depending on the land use category.

Export coefficient method: estimates pollutant load based on export coefficients. The load is equal to area of land use category times the pollutant loading rate.

$$L = A \times E$$

Where:

L is the pollutant load (lbs/yr)

A is the area of a particular land use (ac)

E is the export coefficient (lbs/yr/ac)

Simple method: estimates pollutant load based on runoff coefficients. The load includes: annual rainfall, percent impervious, pollutant event concentration, and area of the land use category.

$$L = R \times C \times A \times \frac{2.72}{12}$$

Where:

- L is the pollutant load (lbs/yr)
- R is the annual runoff (in)
- C is the pollutant concentration (mg/l)
- A is the area of a particular land use (ac)
- $\frac{2.72}{12}$ is a conversion factor

$$R = P \times Pj \times Rv$$

Where:

- R is the runoff coefficient
- P is the annual rainfall (in)
- Pj is the % rainfall producing runoff = default is usually 90%
- Rv is the runoff coefficient = 0.05 + 0.009I
- I is the percent impervious (0-100)

Therefore the pollutant load, L, can be expressed as:

$$L = P \times Pj \times Rv \times C \times A \times \frac{2.72}{12}$$

Table 1. Land use categories and total phosphorus loading coefficient.

Land use Category	TP	TN	Runoff Coefficient	Units	Impervious	Calculation
Open Water	0.24	6.1	-	lbs/acre	-	Export Coefficient
Developed, Open Space	0.31	2.1	0.14	mg/L	10%	Simple Method
Developed, Low Intensity	0.31	2.1	0.23	mg/L	20%	Simple Method
Developed, Medium Intensity	0.31	2.1	0.50	mg/L	50%	Simple Method
Developed, High Intensity	0.31	2.1	0.77	mg/L	80%	Simple Method
Forest +	0.10	2.5	-	lbs/acre	-	Export Coefficient
Pasture/Hay	0.40*	0.8	-	lbs/acre	-	Export Coefficient
Cultivated Crops	1.30	7.0	-	lbs/acre	-	Export Coefficient

*An analysis of the load using data from two TMDLs within an urban dominated watershed and agriculturally dominated watershed indicated a low coefficient value = 0.15 (urban) and a high coefficient value = 0.70 (agricultural) were the most appropriate. The mean value of 0.4 lbs/acre is used as the default. This sensitivity should be considered and when appropriate adjust the coefficient. In highly urban watersheds where the presence of intensive agricultural activities is low or nonexistent, a low value may be appropriate and in highly agricultural watersheds the higher value may be appropriate.

Parameter / Coefficient Rationale

The nutrient coefficients in this analysis were selected based on existing models relevant to NYS and represent an average of these models. The coefficients were evaluated by DOW staff and deemed appropriate for inclusion.

Two NYS TMDLs, Onondaga Lake and Lake Champlain TMDLs were compared to the predicted stormwater load using TMDL-lite. Coefficients derived from the literature were then adjusted to better compare with these TMDLs.

It was determined from this comparison that only the coefficients used in the two TMDLs for Hay/Pasture category differed substantially. As the footnote indicates above, this value needed to be reduced for the highly urbanized Onondaga Lake watershed and increased for the Lake Champlain watershed which consists of significant agricultural areas other, hence the recommended range from 0.15 to 0.70 lbs/ac/yr.

2. Septic Loads

This part of the tool estimates the septic nutrient load. The estimated load is based on population served by septic, and proximity to surface waters.

Inputs

- Total number of septic in watershed
- Proximity to surface waters
- Seasonal occupancy rates

Outputs

- Annual pollutant load (lbs/yr)

Calculation Methods and Model Parameters:

The calculation methods for Phosphorus and Nitrogen are below.

Phosphorus:

Septic system load*: $P \text{ released person}^{-1}\text{yr}^{-1} \times \text{average household size} \times \text{number of homes with septic systems} \times \% \text{ of systems with deficiencies} \times \text{seasonal uptake}$

* Septic systems within 250ft from a waterbody are only considered.

Nitrogen:

Septic systems load**: $N \text{ released person}^{-1}\text{yr}^{-1} \times \text{average household size} \times \text{number of homes with septic systems} \times \% \text{ loss in septic tank} \times \% \text{ loss in leaching field} \times \% \text{ lost in plumes} \times \% \text{ lost in aquifer.}$

Cesspools**: $N \text{ released person}^{-1}\text{yr}^{-1} \times \text{average household size} \times \text{number of homes with cesspools} \times \% \text{ loss in septic tank} \times \% \text{ lost in plumes} \times \% \text{ lost in aquifer.}$

**Septic or cesspool systems within 650ft from a waterbody are not included in the percent lost in the aquifer.

Parameter / Coefficient Rationale

The default coefficients used in the septic load calculation are presented in Table 1. These coefficients were selected based on literature review of loading models and the default values used in well-established models (e.g., The Nitrogen Loading Model, and GWLF).

Table 2: Default Septic Parameter Estimates

Parameter	Default Values	Units
Average household size	2.6	person/house
N-released per person per year	4.8	kg/person/yr
N-septic tank efficiency	6%	-
N-leach field efficiency	35%	-
N-Loss to plumes	34%	-
N-Loss to Aquifer	35%	-
P-effluent per person per year	1.5	g/person/d
P-seasonal uptake (May-Oct)	0.4	g/person/d
P- total septic deficiencies	35%	-

3. Point Source Loads

Average flow and concentration data from 3 years of Discharge Monitoring Reports (DMR) data for all point sources. Data is averaged over a three year period to provide a reasonable approximation of actual loadings.

Inputs:

- Average flow rate (mgd)
- Average pollutant concentration (mg/L). For POTWs where concentration data is not available a default value of 3.0 mg/L may be assumed for phosphorus, and 30.0 mg/l for total nitrogen.

Output:

- Average annual pollutant loading rate (lbs/yr)

Load Summary

This tab in the workbook summarizes all the loadings to the waterbody. No input is required for this sheet, but the data should be reviewed to check for erroneous values.

Budget / Waterbody Response

The parameters and calculations in the budget/waterbody response tab are waterbody specific: lake, stream, and estuary. Specific inputs, based on morphometric data, for each waterbody type may be used to: estimate of average nutrient concentration, estimate of load reduction needed to meet target concentration and determine the effect of pollutant loading reduction scenarios. Below are the input requirements for each water body type.

Inputs:

Lake

Ambient concentration
Target concentration
Mean depth
Residence time
Surface area

Stream

Ambient concentration
Target concentration
Upstream flow rate
Upstream concentration
Source flow rate
Source concentration
Non-point source mass
Stream velocity
Distance downstream
Removal rate

Estuary

Ambient concentration
Target concentration
Mean Depth
Removal rate
Residence time
Surface area
Volume

Output:

- Estimated mean concentration based on TMDL-lite loading analysis
- Ambient based load, i.e., the load to the waterbody predicted from ambient monitoring data
- Estimated load reduction needed to meet target concentration
- Practical load reduction scenario.

Calculation Methods and Model Parameters:

A simple mass-balance model is used for each waterbody type to evaluate the annual average waterbody response to mean annual loading rates. Detailed descriptions of the models can be found in Chapra (1997), Vollenweider (1969, 1975, 1976), Brett and Benjamin (2008) DEP (1999), and Dettmann (2001).

The conceptual model for each waterbody type are as follows:

Lakes:

The equation below is the conceptual lake phosphorus model used in this analysis. For derivation of this equation see Chapra (1997), Vollenweider (1969, 1975, 1976), or DEP (1997). The model assumes a steady inflow/outflow, instantaneous mixing (e.g., the pollutant is uniformly distributed) and a first order reaction rate for the removal of the pollutant.

$$C = \frac{L\tau}{\bar{Z}(1 + \sqrt{\tau})}$$

Where:

C is concentration (mg/L)

L is the areal loading rate. This is estimated by dividing the annual loading rate to the lake divided by the surface area of the lake. (lbs/yr-ac)

τ is the residence time. This is estimated by dividing the volume by the flow. (yrs)

\bar{z} is mean depth of the waterbody. (ft)

Streams:

The two equations below is the conceptual model for a stream used in this analysis. These two equations are used in conjunction to appropriately assess multiple source types (e.g., point and non-point sources) to provide an accurate estimation of in-stream constituent concentrations. For derivation of this equation see Chapra (1997). The models assume that transport of constituents are by advection only (no diffusion or dispersion), and there is instantaneous lateral mixing occurs across the river (no longitudinal mixing along the river). The models also assume that there are steady inflows and outflows, instantaneous mixing, and constant velocity.

$$C_m = \frac{Q_w C_w + Q_r C_r}{Q_m}$$

$$C = C_m e^{-\frac{k}{U}x} + \frac{S_d}{k} (1 - e^{-\frac{k}{U}x})$$

Where:

C_m is the mixed concentration. (mg/L)

Q_m is the mixed, or total downstream flow rate, and is equal to Q_w plus Q_r . (mgd)

Q_w is the total point source flow. (mgd)

C_w is the point source concentration. (mg/L)

Q_r is the upstream riverflow. (mg/L)

C_r is the river concentration. (mg/L)

C is the concentration at location X . (mg/L)

k is the reaction rate. This variable can be considered as the sum of all losses within the waterbody, e.g., sedimentation, incorporation into biomass, etc. (yrs⁻¹)

U is velocity. (fps)

X is a length. This the distance from the mixing point to a downstream point of interest. (ft)

S_d is a diffuse source mass, e.g., stormwater enters a river over its entire length. (lbs/yr-ft³)

Estuaries:

The estuary conceptual model is similar to the conceptual lake model, with the exception of considering feedback flows into the system. The model assumes flow is constant, mixing is instantaneous, and there is a single reaction that accounts for all biological and physical removal processes in the system. The following equation is a simple model that can evaluate the annual average response to mean nitrogen loading to estuaries. Derivation of this model can be found in Dettmann (2001).

$$N = \left(\frac{L\tau}{V} + N_s \right) \frac{1}{1 + k\tau}$$

Where:

N is the mean concentration in the estuary. (mg/L)

L is the areal loading rate. This is calculated as the annual loading rate divided by the surface area of the estuary. (lbs/yr-ac)

τ is the freshwater residence time. This is estimated as the volume of freshwater divided by the freshwater flow rate. See Shelodon and Alber (2006) or EPA 600/6-85/002b for technical detail of calculations. (yrs)

V is volume, considered to be the control volume of interest, e.g., for lakes the entire lake, estuaries the ocean boundary, rivers the volume of the mixture. (m³)

N_s is the boundary concentration of nitrogen. (mg/L)

k is the reaction rate. This variable can be considered as the sum of all losses (e.g., sedimentation, incorporation into biomass) within the waterbody. (yrs^{-1})

Parameter / Coefficient Rational

Table 2 provides an overview of the default parameter / coefficient values derived from the literature sources cited in each calculation method presented above.

Table 3: Default Values for Waterbody Assessment

Parameter	Value	Units
P-loss in Lakes	$\sqrt{\tau}$	yr^{-1}
P-target concentration in lakes	0.020*	mg/L
P-loss in streams	0.14	yr^{-1}
P-target concentration in streams	0.075	mg/L
N-loss in estuaries	3.60	yr^{-1}
N-concentration in estuaries	0.40	mg/L

*For Class A lakes, a P-target of 0.015 mg/L should be used

Practical Load Reduction Scenario

This feature on the Budget / Waterbody Response pulls the output data from the Load Summary tab and the Budget / Waterbody Response tab. Users may adjust percent reductions for each source load. To better understand where reductions could be applied to achieve the target in-water concentration. However, there are many compounding factors that influence an achievable percent removal for each source. Therefore it is suggested that the following be considered for each source.

Developed – A practical percent reduction for this source is anywhere from 0-20%. This area should be evaluated to determine if it is currently an MS4. If the area is within a MS4 area it should be assumed that the baseline program (the six minimum controls) provides a 10% percent reduction. Since we can assume that all MS4s programs have been implemented since 2008, any impaired waterbody listed on the 303(d) prior to 2008 is a candidate for a 0-20% reduction whereas a waterbody listed on the 303(d) list after 2008 is candidate for only a 0-10% reduction. This assumes that the MS4 program is already in place and 10% of the pollutant load has been removed.

Forest – No load reduction should be considered.

Agriculture – a reasonable load reduction from this landuse is anywhere from 0-10%.

Septic Load – in order to determine a reduction scenario the possibility of sewerage should be evaluated. This also should consider the location of the septic systems. It is likely that systems high in the watershed, or in low density areas will not be included in sewerage project. Most likely areas include the systems on the lake and/or systems in high density areas. Therefore it is reasonable to expect a percent reduction of 0-100%.

Point source load – The point source data should be evaluated. Reductions are pollutant and facility specific. The effluent concentrations provided are considered to be achievable. In both cases further reductions are possible and can be evaluated, but these reduction considerations require more detailed analysis, such as an actual TMDL or watershed plan.

Phosphorus – effluent concentrations of 0.5 to 1 mg/L total phosphorus.

Nitrogen - effluent concentrations of 6 to 10 mg/L total nitrogen.

Limitations

This simple screening procedure is an average representation of the annual average of the natural processes that govern these systems. It is important to understand the limitations of applying simple models to complex natural systems. As with any simple model, the method to some degree sacrifices precision for the sake of simplicity and generality. However, application of these methods provide useful information for planning and screening for recovery potential.

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Appendix F: TMDL or Interim Alternative Clean Water Plan Outreach Milestones

The majority of outreach work should be carried out by technical staff and outreach staff, with the assistance from administrative staff for certain tasks. Because many TMDL recommendations are voluntary and require local implementation, their successful implementation is highly dependent on public and stakeholder outreach. The public and stakeholders must first be aware of the TMDL or interim alternative clean water plan and its details, but also be generally in support of it and willing to carry out the work to implement the recommendations outlined in the TMDL or 9 Key Element Watershed plan (or other interim alternative clean water plan).

This document assumes that staff are knowledgeable about/or have already participated in the prioritization, and planning for data needs, and have generally assessed the targeted watershed community through internal communications and the monitoring kickoff meetings.

The tables below outline the stakeholder (internal and external) meetings that will likely need to be carried out as part of a successful TMDL or interim alternative clean water plan outreach program. The particular outreach process for each type of plan may vary, and fewer or additional meetings or communication activities than those described below may be necessary or desirable. This will depend on a number of variables which may or may not be foreseeable. Such variables could include the level of public participation, stakeholder/partner/public support for the TMDL or interim alternative clean water plan and its recommendations, and past history between groups or individuals in the watershed and DEC.

Outline of possible outreach milestones, in chronological order.

Communication	Target time
Monitoring kickoff meeting	By May
Regional staff meeting	Scheduled as needed
Agency Partners within the target watershed meeting	June, or as needed
Postcard communication	2-3 weeks before scheduled meeting
Target watershed community (public) meeting	July or August, or best time
Optional meeting	Scheduled as needed
Optional postcard communication, as needed	As needed, 2-3 weeks before scheduled meeting
Submit ENB notice for posting	1 week before start of public comment period
Post draft TMDL document on DEC Clean Water Blueprint webpage	Day of ENB posting
Draft TMDL public comment period	30 days after ENB notice
Optional meeting during public comment period	Schedule within 2 weeks of start of comment period

Monitoring Kickoff Meeting

The department monitoring programs initiate planning each year in the late winter to early Spring. At the beginning of each year's planning cycle, one or more kick-off meetings is held to gain input from DEC regional staff and other stakeholders.

Audience	Purpose	Key Message	Outcomes/Benefits	Target Time
DEC regional staff, stakeholders and partners such as soil and water conservation districts.	To gather information on the target waterbodies and assess the level of willingness of the public/stakeholders to work toward/be involved with the target waterbodies.	Educate the audience about the TMDL or alternative plan process and its relationship to monitoring cycle.	<ul style="list-style-type: none"> Identify who the key stakeholders/partners may be in the area Gain local input on waterbodies of concern in each basin Contact information 	Annually in by May

How to prepare

- Draft list of questions about target watershed
- Develop handouts and presentation materials, if needed

Regional Staff Meeting

If regional staff did not attend the monitoring planning kick off meeting, or if work on the TMDL does not align with the monitoring and assessment schedule, or different public interest groups were identified at the kick off meeting.

Audience	Purpose	Key Message	Outcome/Benefit	Target time
Regional Citizen Participation Specialist (CPS), Regional Water Engineer, Regional Natural Resource Supervisor, other regional contacts who may have useful information regarding the waterbody	Inform regional staff that a TMDL will be developed in their region and obtain information about target watershed	TMDL or alternative plan being develop Would like input into process	<ul style="list-style-type: none"> Identify known issues within lake/watershed Ongoing/past enforcement Overall rapport between DEC, community and other stakeholders 	Schedule as needed

How to prepare for the meeting

- Correspond with regional staff via email or phone regarding specific questions/concerns
- Set up call/meeting, if appropriate
- Develop questions/agenda

Meeting with agency partners within the watershed

This meeting is intended to inform local interested stakeholders and collect local information and would be beneficial if local interest groups or other state and federal agencies were not present at the monitoring kick off meeting or were not identified until the monitoring meeting

Audience	Purpose	Key Message	Outcomes/Benefits	Target time
Local stakeholders with vested interest in watershed or waterbody (watershed group, municipal officials) and other agency partners* (i.e., DOH, DOS, Regional EPA)	To develop relationship with groups, determine if groups know of watershed activities or plans and determine if groups could be part of implementation plan.	Inform about TMDL process. DEC seeking input and support to improve WQ and help identifying potential issues.	Gain local input on waterbodies of concern in each basin	After planning meeting, but before monitoring data is collected, if needed

*Examples of possible partners: Local or county health departments; other local, county or regional agencies or departments, such as Highway Department or NYCDEP; lake associations; homeowners associations; soil and water conservation district, including NRCS; Cornell Cooperative Extension; other state agencies; local, regional or statewide NGOs involved in the lake/watershed; EPA; county water quality coordinating committees.

How to prepare

- Identify potential stakeholders and partners by consulting with: other identified stakeholders, DEC regional contacts, and county and municipal websites.
- Develop list of questions, if applicable

Public Input Meeting

Getting public input is a critical step for development of a TMDL or interim alternative clean water plan. The purpose of this type of meeting is to inform the target watershed community about TMDL or alternative plan process, identify public concerns, and gain public support. In addition, DEC has an opportunity to explain the possible implications, likely next steps, and introduce stakeholders to the idea that they may have to implement all or part of the final plan for the plan to be successful.

Public input can help to answer:

- What work has been or is currently being done in the waterbody/watershed regarding water quality, weeds, etc.
- Are there particular water quality concerns?
- What is desired waterbody use and actual waterbody use?
- Are there other existing or potential issues?

It may be beneficial to distribute a survey to the meeting participants and to make the survey available on DEC's website.

Audience	Purpose	Key Message	Outcomes/Benefits	Target time
Community and general public; identified stakeholders and agency partners	Inform target community that DEC plans to develop a plan to address water quality. Explain why and how; describe the stakeholders' roles in the process.	Purpose of TMDL or alternative plan is to improve water quality. DEC wants input from the community to ensure plan is comprehensive and accurate. DEC wants community's help to implement.	Stakeholder concerns about the waterbody (desired use, actual use, water quality concerns Possible causes of water quality issues Particular problem areas)	Before collection of monitoring data. The timing of the meeting should consider the proportion and participation of seasonal residents <i>Meeting prep</i> – at least 6 weeks <i>Meeting facilitation</i> - .5 – 2 days (with travel) <i>Meeting follow-up</i> – About 2-6 weeks; ongoing

How to prepare

- Create public contact list
- Determine tentative meeting date/time
- Determine expected number of attendees
- Find meeting location
- Reserve meeting location
- Determine whether a mailing is necessary at any point
- Develop and send meeting notification (postcards in the process)
- Create meeting agenda
- Determine and develop materials needed for meeting (presentation, handouts, sign-in sheet)

Meeting facilitation:

- Arrive at least one hour early and set up meeting room
- Introduce topic and staff
- Present information
- Allow for questions
- Wrap-up with next steps
- Allot time for individual discussions

Meeting follow-up:

- Provide information for those who missed meeting or have additional questions
- Update contact list with information from meeting sign-in and returned postcards

Technical staff:

- Work with outreach staff throughout process and help craft message to be communicated.

Postcard Communications

Postcards may be used to reach the residents and homeowners within the target community. This will ensure that anyone who resides or owns a home will be notified that DEC is hosting a meeting, where they can find more information, and how to contact DEC information for public questions or concerns.

Audience	Purpose	Key Message	Outcomes/Benefits	Target time
Residents, homeowners, businesses, and property owners within target watershed	Inform target watershed community and property owners about scheduled public meetings or updates on the TMDL progress or delays.	Reason for the mailing, what, if anything, the public can or should do, and contact information for questions.	Greater meeting attendance Due diligence to reach out to community with resources available	Prep time 3 weeks Send 2 weeks before meeting

How to prepare for postcard mailing

- Extract mailing addresses from tax parcel map within target watershed
- Develop postcard
- Complete request for print & mailing
- Get needed approvals
- Notify print shop and mail room 2 weeks before need to send
- Submit PDF of mail merged postcards to print shop for printing, cutting, and mailing

Optional Public Meeting

It may be determined that a second meeting is required or would be beneficial regarding a particular topic or need specific to this waterbody/audience. At this meeting DEC staff could inform the target watershed community about waterbody management or other specific needs identified.

Audience	Purpose	Key Message	Outcome/Benefits	Target time
Community/ general public; identified stakeholders and agency partners	Inform target watershed community about specific topic related to TMDL or alternative plan	Determined by topic area	Public better understands lake issues or specific topic areas	Meeting prep – at least 6 weeks Meeting - .5 – 2 days (with travel) Meeting follow-up – About 2-6 weeks; ongoing

How to prepare

- Determined based on needs/questions identified in previous meeting
- Other program staff (e.g. lake or stream monitoring and assessment staff) may be needed to present information at this meeting
- Same tasks as other public meeting

Additional Public Meeting—Public comment period overview of draft TMDL

Staff may decide to hold a public meeting during the comment period to foster the relationship with the community (may be important if future work is planned in the region), or if the initial or second meeting produced substantial changes to the data inputs into the model or approach to the implementation plan, or to explain the structure and elements of the draft to help the public make informed comments.

Audience	Purpose	Key Message	Outcome/Benefits	Target time
Community and general public; identified stakeholders and agency partners	Present draft TMDL and receive written public comments	Present a summary of the draft TMDL	Foster positive relationship with community (engage the community in the implementation of the TMDL?)	Meeting prep – at least 6 weeks
		Inform what roles the public and stakeholders have in implementing the TMDL and how they will be impacted by its recommendations		Meeting - .5 – 2 days (with travel)
		How the public and stakeholders can comment on the TMDL.	Help public understand document and make informed comments	Meeting follow-up – About 2-6 weeks; ongoing

How to Prepare

- Required communication--ENB Environmental Notice Bulletin (ENB) Notice and Public Comment Period. Before the TMDL can be submitted to EPA for FINAL approval, it must be released in draft form for public review and comment via the ENB.
- Create ENB notice (3 days for draft and review)—ENB notice should include: a plain English description of what the document is, including the main pollutant, source and suggested remedies; how to comment; meeting location, date and time.
- Submit ENB notice to Division of Environmental Permits 7 days in advance
- Post draft TMDL and ENB on website
- Collect, respond to, incorporate comments into TMDL document or responsiveness summary
- Comment period – at least 30 days plus 7 days between submitting notice and publication
- Same tasks as other public meeting(s)

Communication Resources

Partners they may help identify public interest groups, gain perspective on target watershed community, or to get assistance with scheduling and hosting public meetings.

- Regional Communication staff
- DEC Office of Communications staff
- Watershed Management Advisory Committee (WMAC)
- DEC Watershed Programs

Options for communications

- Email
- Phone/conference call
- Webinar (WebEx)
- Informal meeting
- Public meeting
- Mailing—informational postcard
- Media announcement—announces meetings directly to news media
- Press release
- Media Advisory
- Listserv (DEC GovDelivery listservs, e.g., MakingWaves, other as appropriate)
- Partners (e.g., NYSFOLA, SWCD, Municipalities)
- DEC Calendar
- YouTube video

Templates (see communication staff)

- Postcard (print & mail room need 2 week notice of project and approval form)
 - Meeting announcement
 - Public comment period
 - Progress on completion of report
- Handouts
 - Overview of TMDL process
 - YouTube & PDF (online)
 - Lake Management
- Survey—community concerns
 - Online (survey monkey)
 - Paper (at meetings)
- Presentations
 - Phosphorus TMDLs
 - YouTube Video

Appendix G: Wastewater Funding Opportunities for Clean Water Plan Implementation

Updated September 2014

Introduction

This document summarizes the funding opportunities that may be available to communities to fund sewerage projects and/or build a wastewater treatment plant (WWTP).

Sewerage is expensive, but is a critical part of improving water quality as outlined in many clean water implementation plans. The success of moving forward with a sewerage project depends on the level of local support. By sharing funding and assistance information with these communities early in the process, they may be more willing to consider sewerage.

Having a rough schedule for a sewerage project may help with local understanding of a project. Below is a typical schedule:

- Developing interest and coordination between impacted municipalities (1 yr)
- Conducting an initial feasibility study (1 yr)
- Executing an inter-municipal agreement and forming a sewer district (2 yrs)
- Securing funding (3 yrs)
- Developing the project design and implementing the project (3 yrs)

Funding or technical assistance may be available for any of the above steps. The funding opportunities described in this document are competitive and open/available to all eligible applicants. Please note that none of the funding sources described below are certain.

Key Terms

Grants – do not need to be repaid, but a match from the applicant may be required

Loans – need to be repaid over a given time period. Interest rates from 0% and up.

Engineering Planning Grant (EPG)

Administered by: New York State Environmental Facilities Corporation (EFC) and New York State Department of Environmental Conservation (DEC)

Program Description: Funding for municipalities to complete preliminary engineering reports. Most community's first step for building a WWTP is to complete a preliminary engineering report. The report provides a municipality with information about the feasibility and cost of a project. An engineering report is also necessary for projects to be listed on the Clean Water State Revolving Fund Intended Use Plan. Eligibility for other funding sources may also require a preliminary engineering report. EPG funds are available for municipalities that need to construct or improve their municipal wastewater system. Grant funds can be used to pay for engineering and/or consultant fees for engineering and planning services for the production of an engineering report. Eligible applicants are municipalities with Median Household Income statistics (per 2010 Census data) equal to or less than \$65,000.

Funding available: Grants up to \$50,000. Municipalities with a total population of 50,000 persons or greater are eligible to receive up to \$50,000. Municipalities with a population of less than 50,000 are eligible to receive a maximum grant award of \$30,000. Grant recipients are required to provide a local match equal to 20% of the total cost of the engineering planning activity.

Applying: Applications are through the Consolidated Funding Application (CFA). Information on the CFA process can be found on the Regional Economic Development Council website at: <http://regionalcouncils.ny.gov/>

Contacts: DEC Regional Water Engineers (<http://www.dec.ny.gov/about/558.html>)

Website: <http://www.dec.ny.gov/pubs/81196.html>
<http://www.efc.ny.gov/Default.aspx?tabid=485>

Clean Water State Revolving Fund (CWSRF)

Administered by: New York State Environmental Facilities Corporation (EFC) and New York State Department of Environmental Conservation (DEC)

Program Description: This program provides low-interest rate financing (loans) to municipalities for the construction of sewers and wastewater treatment facilities.

Funding available: Various categories of loans: subsidized interest rate financing, market rate financing, hardship financing and additional subsidization/principal forgiveness. Short term financing for project development and construction, as well as long term financing, may be available to eligible applicants. For communities with demonstrated financial hardship, interest rates can be as low as 0%.

Applying: Applicants must submit project information to EFC prior to May 1st to be considered for financing in the following federal fiscal year, which begins in October. All eligible projects are scored and listed in EFC'S Intended Use Plan Annual List or Multi-Year List. Applications for financing may be submitted for projects on that year's annual list for subsidized or unsubsidized funding. EFC should be contacted for details on the information needed for project listing and funding applications.

Contacts: EFC Community Assistance staff:

Fred Testa
Environmental Project Manager
625 Broadway -7th Floor
Albany, N.Y. 12207-2997
(p) 518-402-7396; (f) 518-402-7456; email: Fred.Testa@efc.ny.gov
Counties covered: Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster, Westchester, Albany, Columbia, Greene, Montgomery, Rensselaer, Schenectady and Schoharie

J.C. Smith
Environmental Project Manager, Statewide Co-funding Coordinator
7291 Coon Road
Bath, N.Y. 14810
(p) 607-776-4978; (f) 607-776-4392; email: JC.Smith@efc.ny.gov
Counties covered: Chemung, Genesee, Livingston, Monroe, Ontario, Orleans, Seneca, Steuben, Schuyler, Wayne, Yates, Allegany, Cattaraugus, Chautauqua, Erie, Niagara, and Wyoming

Terry Deuel
Environmental Project Manager
1285 Fisher Ave.
Cortland, NY 13045
(p)607-753-3095, ext 252; (f) 607-753-8532; email: Terrance.Deuel@efc.ny.gov
Counties covered: Delaware, Otsego, Jefferson, Lewis, Oneida, Broome, Cayuga, Chenango, Cortland, Madison, Onondaga, Oswego, Tioga, and Tompkins

Jason Denno
Environmental Project Manager
PO Box 220, 232 Golf Course Road
Warrensburg, N.Y. 12885
(p) 518-623-1244; (f) 518-623-1311; email: Jason.Denno@efc.ny.gov
Counties covered: Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren, Washington, Herkimer, and St. Lawrence

Dwight Brown
SRF Program Services Coordinator
625 Broadway -7th Floor
Albany, N.Y. 12207-2997
(p) 518-402-7396; (f) 518-402-7456; email: Dwight.Brown@efc.ny.gov
Counties covered: Bronx, Kings, Nassau, New York, Queens, Richmond, and Suffolk

Website: www.efc.ny.gov

NYS Community Development Block Grant (CDBG)

Administered by: New York State Division of Homes and Community Renewal - Office of Community Renewal (OCR)

Program Description: The CDBG provides financial assistance for water and sewer infrastructure projects to cities, towns, and villages with populations under 50,000 and counties with an area population under 200,000.

Funding available: Grants are available for public infrastructure projects including wastewater infrastructure. Grant awards up to \$600,000 can be made to a single town or village applicant for a water or sewer project. Awards up to \$900,000 can be made to joint town/village applicants. Up to \$750,000 can be awarded to county applicants.

Applying: Applications are through the Consolidated Funding Application (CFA). Information on the CFA process can be found at: <http://regionalcouncils.ny.gov/>

Contacts: Charles Phillion, Senior Community Developer, 518-474-2057 or cphillion@nysdcr.org

Website: <http://nysdcr.gov/AboutUs/Offices/CommunityRenewal/>

USDA Rural Development Utilities Service Water and Environment Program

Administered by: USDA Rural Development

Program Description: This program provides loans and grants to public bodies, non-profit organizations and Native American tribes with the design, construction, and improvements of wastewater systems for rural communities. Eligibility of municipal applicants is restricted to jurisdictions in rural areas with a total population less than 10,000.

Funding available: Announced loan rates as of July, 2014 are 2.375% (poverty), 3.25% (intermediate) and 4% (market).

Applying: Applicants submit an application for an initial funding estimate that includes summary information about the applicant, a reviewable project engineering report and an Environmental Report summarizing potential environmental impacts. Applicants receiving an initial funding estimate are directed to make a full application for funding within 90 days of the estimate date. The major components of the application are similar to that for the CWSRF program.

Contacts: State and Regional office information: http://www.rurdev.usda.gov/NY_Office_Locations.html

Website: <http://www.rurdev.usda.gov/NYHome.html>

Local Government Efficiency Program (LGE)

Administered by: New York State Department of State

Program Description: The LGE provides technical assistance and competitive grants to local governments for the development of projects that will achieve savings and improve municipal efficiency through shared services, cooperative agreements, mergers, consolidations and dissolutions. Applicants must include at least two involved municipalities.

Funding available: Grants of up to \$200,000 are available for implementation projects (i.e. construction of shared infrastructure) for each local government involved in the project, up to a maximum of \$1,000,000. Grants of up to \$12,500 are available for planning projects (i.e. development of engineering reports, evaluation of consolidation) for each local government involved in the project, up to a maximum of \$100,000. A local cash match is required, which varies based on project type.

Applying: Applications are through the Consolidated Funding Application (CFA). Information on the CFA process can be found on the Regional Economic Development Council website at: <http://regionalcouncils.ny.gov/>

Contacts: Kyle Wilber, 518-473-3355 or LGEprogram@dos.state.ny.us

Website: <http://www.dos.ny.gov/lg/lge/index.html>

Appalachian Regional Commission Area Development Grant Program (ARC)

Administered by: Appalachian Regional Commission (ARC)

Program Description: The ARC provides funding and technical assistance for infrastructure, including local water and sewer systems. New York counties within Appalachia are: Allegany, Broome, Cattaraugus, Chautauqua, Chemung, Chenango, Cortland, Delaware, Otsego, Schoharie, Schuyler, Steuben, Tioga, and Tompkins.

Funding available: Grants of up to \$150,000 can be made to not-for-profit or local government groups that can demonstrate a positive economic impact and document the required matching funds.

Applying: Pre-applications for ARC grants are typically due in early June, local rankings are completed and announced by September just prior to the beginning of the new federal fiscal year. State rankings are announced in December. Funds for the highest priority projects must be budgeted in the federal budget in the new fiscal year.

Contacts: Kyle Wilber, 518-473-3355 or LGEprogram@dos.state.ny.us

Website: <http://www.southerntierwest.org/htm/arc.htm>

Water Quality Improvement Projects (WQIP)

Administered by: New York State Department of Environmental Conservation (DEC)

Program Description: WQIP is a competitive, statewide reimbursement grant program open to local governments for projects that directly address documented water quality impairments. WQIP funds can be used towards municipal wastewater treatment infrastructure improvement. This can be mentioned as a potential funding source, but please note that the frequency of grant availability is uncertain, and that the amount of funding available for wastewater is typically very limited, and likely insufficient for constructing a new system.

Funding available: Grants up to 85% of the total project cost with a 15% local share required.

Applying: Applications are available through DEC.

Contacts: Water Quality Improvement Project Program, 518-402-8179 or user.water@dec.ny.gov

Website: <http://www.dec.ny.gov/pubs/4774.html>

Appendix H: Nonpoint Source Funding Opportunities for Clean Water Plan Implementation (Updated December 2015)

Non-Agricultural Nonpoint Source Funding Programs

Water Quality Improvement Project (WQIP) Program

Eligible applicants:	Municipalities, municipal corporations, soil and water conservation districts.
Summary of program:	Provides funding statewide for non-agricultural nonpoint source projects implementing best management practices
Project state funded:	Implementation.
Frequency grant released:	Annual
Tracking/reports:	Awarded projects are listed in press releases for each round, and the press release is posted on the DEC website. Quarterly reports and final reports are required from grant recipients
Website:	http://www.dec.ny.gov/pubs/4774.html
Contact:	Susan Van Patten, Division of Water, 518-402-8179, DOWinformation@dec.ny.gov

Clean Water Act Section 604(b) Funding

Eligible applicants:	Regional public comprehensive planning organizations in New York State and interstate planning organizations working in New York State
Summary of program:	Provides funding for to regional planning organizations for planning activities.
Project state funded:	Planning.
Frequency grant released:	Every 3-5 years.
Tracking/reports:	All awarded projects are listed on the below website, and progress is tracked with quarterly reports submitted by the award recipient.
Website:	http://www.dec.ny.gov/lands/53122.html
Contact:	Susan Van Patten, Division of Water, 518-402-8179, DOWinformation@dec.ny.gov

Finger Lakes – Lake Ontario Watershed Protection Alliance (FOLLOWPA)

Eligible applicants:	25 counties in the Finger Lakes and Lake Ontario watershed receive FOLLOWPA funding. Those eligible to receive a portion of the funding distributed to the 25 counties varies by county.
Summary of program:	FOLLOWPA is a membership of 25 counties, represented by County Planning Departments, Soil and Water Conservation Districts, County Health Departments and Water Quality Management Agencies within the Finger Lakes and Lake Ontario drainage basin. FOLLOWPA receives an annual appropriation from the Environmental Protection Fund, which is divided among the 25 counties. Each county then uses that funding to implement water quality-related programs and projects. Some counties have funded green infrastructure projects with their portion of the funding. How the counties disburse their funding for particular projects varies by county. Interested municipalities or others interested in receiving funding from a FOLLOWPA county should contact the appropriate county coordinator found on this webpage: http://www.followpa.org/county.html .
Project state funded:	Planning, pilot and implementation
Frequency grant released:	Annually.
Tracking/reports:	N/A
Website:	http://www.followpa.org/index.html

Contact: Susan Van Patten, Division of Water, 518-402-8179,
DOWinformation@dec.ny.gov

Hudson River Estuary Program Grants

Eligible applicants: Municipalities and not-for-profit corporations with a 501©(3) designation. Projects must be within the Hudson River estuary geographic boundaries.

Summary of program: In prior years, funds have been awarded for green infrastructure improvements for stormwater management.

Project state funded: Planning, pilot and implementation

Frequency grant released: Annually.

Tracking/reports: Past grant recipients and projects are posted on the below website

Website: <http://www.dec.ny.gov/lands/5091.html>

Contact: Hudson River Estuary Program, 518-402-8270

Environmental Justice Community Impact Grant Program

Eligible applicants: Community-based organizations that must also meet several other criteria, as explained on the below website.

Summary of program: Previously awarded projects have included green infrastructure demonstration projects. In the 2012 grant cycle, smaller “Green Gems” projects must involve education, stewardship, and/or monitoring activities related to parks, open space, community gardens or green infrastructure.

Project state funded: Pilot

Frequency grant released: Varies.

Tracking/reports: Past grant recipients and project descriptions are listed on this website: <http://www.dec.ny.gov/public/31403.html>

Website: <http://www.dec.ny.gov/public/31226.html>

Contact: Office of Environmental Justice, 518-402-8556, justice@dec.ny.gov

Urban & Community Forestry Program Cost Share Grants

Eligible applicants: Municipalities and not-for-profit corporations acting on behalf of a public ownership interest in the property or acting on behalf of a public property owner

Summary of program: Street tree planting, one eligible project type, may fit well with green infrastructure projects.

Project state funded: Implementation

Frequency grant released: Varies.

Tracking/reports: Not available at this time.

Website: <http://www.dec.ny.gov/lands/5285.html>

Contact: Debra Gorka, Division of Lands and Forests, DEC, LF.Lands@dec.ny.gov, 716-851-7010

Environmental Facilities Corporation Green Innovation Grant Program (GIGP)

Eligible applicants: Any county, city, town, village, district corporation, county or town improvement district, Indian reservation wholly within NYS, any public benefit corporation, public authority and certain New York State agencies, as well as other organizations empowered to develop a project, as described on the below website.

Summary of program: Provides funding for eight specific green infrastructure practices: permeable pavement; bio-retention; green roofs and green walls; stormwater street

trees/urban forestry programs; riparian buffers, floodplains and/or wetlands; downspout disconnection; stream daylighting; and stormwater harvesting and reuse

Project state funded: Planning, pilot and implementation. All projects must include implementation

Frequency grant released: Annually.

Tracking/reports: Previously funded projects are posted on this website:
<http://www.efc.ny.gov/Default.aspx?tabid=228>.

Website: <http://www.efc.ny.gov/Default.aspx?tabid=461>

Contact: Suzanna Randall, New York State Environmental Facilities Corporation, 518-402-7461, GIGP@efc.ny.gov

Department of State Local Waterfront Revitalization Program (LWRP) Grants

Eligible applicants: Villages, towns, or cities, and counties which are located along New York's coasts or inland waterways designated pursuant to Executive Law, Article 42.

Summary of program: The LWRP grant program provides matching grants on a competitive basis to revitalize communities and waterfronts. Funding is available for both planning and implementation, and funded projects may include green infrastructure components

Project state funded: Planning and implementation

Frequency grant released: Annually.

Tracking/reports: The list of awards for each year are listed on the below website

Website: http://www.dos.ny.gov/opd/grantOpportunities/epf_lwrpGrants.html

Contact: Department of Planning and Development, New York State Department of State, 518-474-6000

NYS Energy, Research and Development Authority Cleaner Greener Communities Program Phase II Implementation Grants

Eligible applicants: Local governments, private companies, non-governmental organizations, and other entities with projects in NYS.

Summary of program: This program is an effort to fund implementation of large-scale, high-profile projects that support the goals of each region's sustainability planning efforts. Category 2 (Planning Initiatives) Projects may include green infrastructure planning. Some Category 3 (Community-Scale Sustainability) Projects are required to meet green infrastructure prerequisites.

Project state funded: Planning, pilot and implementation

Frequency grant released: The current application due date for categories 2 and 3 has passed. NYSERDA expects to offer up to two more rounds of funding for this grant, but when future rounds may be announced is uncertain.

Tracking/reports: N/A at this time

Website: <http://www.nyserda.ny.gov/All-Programs/Programs/Cleaner-Greener-Communities/Implementing-Smart-Development-Projects>

Contact: New York State Energy Research and Development Authority, CGC@nyserda.ny.gov

NYS Homes & Community Renewal Community Development Block Grant – Public Infrastructure Funds

Eligible applicants: Town, City or Villages with population less than 50,000, counties with a population less than 200,000 designated principal cities of Metropolitan Statistical Areas.

Summary of program: Funding is available for drinking water, clean water and stormwater; and public works. Green infrastructure components may be a part of these larger public infrastructure projects.

Project state funded: Implementation

Frequency grant released: Annually.

Tracking/reports: Award recipients are listed on this website: <http://www.nyshcr.org/Programs/NYS-CDBG/FundingHistory.htm#2010>

Website: <http://www.nyshcr.org/AboutUs/Offices/CommunityRenewal/FundingOpportunities.htm>

Contact: New York State Homes and Community Renewal, Office of Community Renewal, 518 474-2057, HCRinfo@nyshcr.org

Greenway Communities Grant Program

Eligible applicants: Municipalities that have adopted a resolution stating the community's agreement with the Greenway criteria.

Summary of program: Site planning/design projects may include green infrastructure

Project state funded: Planning

Frequency grant released: Quarterly

Tracking/reports: <http://www.hudsongreenway.ny.gov/GrantFunding/GrantsAwarded.aspx>

Website: <http://www.hudsongreenway.ny.gov/GrantFunding/CommunityGrants.aspx>

Contact: Hudson River Valley Greenway, 518-473-3835, hrvg@hudsongreenway.ny.gov

EPA Urban Waters Small Grants

Eligible applicants: States, local governments, territories, Indian Tribes, and possessions of the U.S., public and private universities and colleges, public or private nonprofit institutions/organizations, intertribal consortia, and interstate agencies
Grants are available to fund research, investigations, experiments, training, surveys, studies, and demonstrations that will advance the restoration of urban waters by improving water quality through activities that also support community revitalization and other local priorities. Depending on each fiscal year's Request for Proposals, this may include green infrastructure

Summary of program:

Project state funded: Planning, pilot, implementation

Frequency grant released: Varies.

Tracking/reports: All projects documented on website. Outcomes of some successful projects are documented on the website.

Website: <http://www2.epa.gov/urbanwaters/urban-waters-small-grants>

Contact: Not available.

EPA Great Lakes Shoreline Cities Green Infrastructure Grants

Eligible applicants: Cities with shoreline that directly touches one of the Great Lakes or a connecting channel, with a population greater than 25,000 and less than 50,000

Summary of program: Grants to eligible shoreline cities to fund green infrastructure projects that will improve Great Lakes water quality. Green infrastructure projects must be within ½ mile of the shoreline of a Great Lake or connecting channel. Available funding for each application was capped at \$250,000

Project state funded: Implementation

Frequency grant released: Two rounds have been awarded so far, and have been on an annual basis.

Tracking/reports: Funded projects are documented on the below website

Website: <http://www.epa.gov/gtrlakes/fund/shoreline/index.html>

Contact: Michael Russ, EPA, 312-886-4013, russ.michael@epa.gov

EPA Great Lakes Restoration Initiative (GLRI)

Eligible applicants: Non-federal governmental entities, including state agencies, interstate agencies, federal-recognized Indian tribes and tribal organizations, and local governments; institutions of higher learning; and nonprofit organizations. In 2014, green infrastructure projects conducted by a municipality located directly on the shore of a Great Lake or a Great Lakes connecting channel are ineligible. Green infrastructure projects conducted by other eligible applicants are eligible

Summary of program: Green infrastructure projects that improve habitat and other ecosystem functions in the Great Lakes are eligible for funding.

Project state funded: Planning and implementation

Frequency grant released: Annually

Tracking/reports: Summary information about GLRI funded projects is available on the Great Lakes Restoration Initiative website:
<http://greatlakesrestoration.us/projects/index.html>.

Website: <http://www.epa.gov/grtlakes/fund/2014rfa02/index.html>

Contact: [EPA, GLRI-RFA@epa.gov](mailto:EPA_GLRI-RFA@epa.gov)

Challenge Cost Share Grant Program

Eligible applicants: U.S. non-Federal organizations and Tribal agencies.
The fiscal year 2015 grant included funding for: incorporating urban forests as green infrastructure into urban planning practices that will result in improvements for ecologically underserved communities and regions; green infrastructure jobs analysis; and utilizing green infrastructure to manage and mitigate stormwater to improve water quality. Projects must have national or multi-state application and impact.

Summary of program:

Project state funded: Planning and pilot.

Frequency grant released: Annually.

Tracking/reports: Grant recipients and projects are listed in a press release for each funding period, and recipients are required to submit bi-annual progress reports

Website: <http://www.fs.fed.us/ucf/nucfac.shtml>

Contact: Phillip Rodbell, U.S. Forest Service Northeastern Area Office, 610-557-4133, prodbell@fs.fed.us

National Fish and Wildlife Foundation Chesapeake Bay Stewardship Fund

Eligible applicants: Non-profit 501© organizations, local governments and agencies, state government agencies and academic institutions. Projects must be implemented entirely within the Chesapeake Bay watershed.

Summary of program: Nonpoint source best management practices meeting Chesapeake Bay priorities.

Project state funded: Planning, pilot and implementation

Frequency grant released: Annually

Tracking/reports: Projects are listed in a press release for each funding period.

Website: <http://www.nfwf.org/chesapeake/Pages/2014-chesapeake-rfp.aspx#.Vdbe1FOZ1gq>

Contact: Jake Reilly, National Fish and Wildlife Foundation, jake.reilly@nfwf.org

National Fish and Wildlife Foundation Delaware River Restoration Fund

Eligible applicants: Non-profit organizations and local governments. Projects must be implemented entirely within the Delaware River watershed

Summary of program: Nonpoint source best management practices to benefit the Delaware River basin.

Project state funded: Planning, pilot and implementation

Frequency grant released: Annually.

Tracking/reports: Award recipients are listed in a press release for each funding period

Website: <http://www.nfwf.org/delaware/Pages/2014-Delaware-RFP.aspx#.VDbhG1OZ1gp>

Contact: Amanda Bassow, National Fish and Wildlife Foundation, 202-595-2476, amanda.bassow@nfwf.org

National Fish and Wildlife Foundation Environmental Solutions for Communities

Eligible applicants: Non-profit 501© organizations, state government agencies, local governments, municipal governments, Indian tribes, and educational institutions

Summary of program: Funding priorities include facilitating investments in green infrastructure. In 2015, priority is given to projects that address 'greening' traditional infrastructure and public projects such as storm water management and flood control, public park enhancements, and renovations to public facilities.

Project state funded: Pilot.

Frequency grant released: Annually

Tracking/reports: Award recipients are listed in a press release for each funding period.

Website: <http://www.nfwf.org/environmentalsolutions/Pages/home.aspx#.VDbjf1OZ1gp>

Contact: Carrie Clingan, National Fish and Wildlife Foundation, carrie.clingan@nfwf.org

National Fish and Wildlife Foundation Urban Waters Restoration

Eligible applicants: Any entity that can receive grants. While partnerships are encouraged to include state and federal agencies as partners, those entities **may not** serve as the grantee **unless** the community partners demonstrate that the state or federal agency is best suited to coordinate the community-based project.

Summary of program: In 2014, project priorities include addressing developing educational programs to provide training to schools, businesses, community groups and homeowners on how to implement green infrastructure practices including sustainable forestry practices; or designing projects intended to control rain water through green infrastructure tools such as tree canopy, permeable pavement, green street designs, bioswales, planter boxes and green roofs, to reduce stormwater flow, controlling flooding and slowing run-off into surface water

Project state funded: Planning

Frequency grant released: Annually.

Tracking/reports: Award recipients are listed in a press release for each funding period

Website: <http://www.nfwf.org/fivestar/Pages/home.aspx#.VDbIP1OZ1gp>

Contact: Sarah McIntosh, National Fish and Wildlife Foundation, sarah.mcintosh@nfwf.org

National Fish and Wildlife Foundation Long Island Sound Futures Fund

Eligible applicants: Non-profit 501© organizations; state, tribal, and local governments; and academic or educational institutions. Nonpoint source or stormwater management, education, and fish passage projects may be in any portion of

the Long Island Sound and its watersheds within the states of Connecticut and New York, but must demonstrate a quantifiable and measurable impact on improving Long Island Sound or its ecosystem. Funding priorities include planning and implementing green infrastructure projects.

Summary of program: Planning and implementation

Project state funded: Annually

Frequency grant released: Annually

Tracking/reports: A link to projects is included on the below website

Website: <http://www.nfwf.org/lisff/Pages/home.aspx#.VdbnII0Z1gp>

Contact: Lynn Dwyer, National Fish and Wildlife Foundation, lynn.dwyer@nfwf.org

FEMA Hazard Mitigation Grants

Eligible applicants: States, local governments, tribes, private non-profit organizations

Summary of program: Provides grants to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration. FEMA Hazard Mitigation grants will fund green infrastructure if a benefit-cost analysis shows that the damages saved from the project exceed the cost of the project.

Project state funded: Planning and implementation

Frequency grant released: Following a disaster declaration, the state will advertise that Hazard Mitigation Grant Program funding is available to fund mitigation projects in the state.

Tracking/reports: N/A

Website: <https://www.fema.gov/hazard-mitigation-grant-program>

Contact: Richard Lord, New York State Office of Emergency Management, 518-292-2370, rlord@dhses.ny.gov

New York City Department of Environmental Protection Green Infrastructure Grant Program

Eligible applicants: Private property owners in combined sewer areas of New York City.

Summary of program: Funds are available for design and construction of green infrastructure projects such as blue or green roofs, rain gardens, porous pavement, and rainwater harvesting.

Project state funded: Planning and implementation

Frequency grant released: Annually

Tracking/reports: Annual reports document completion of grant projects, posted on this website:
http://www.nyc.gov/html/dep/html/stormwater/nyc_green_infrastructure_plan.shtml

Website: http://www.nyc.gov/html/dep/html/stormwater/nyc_green_infrastructure_grant_program.shtml

Contact: New York City Department of Environmental Protection, gigrantprogram@dep.nyc.gov

City of Binghamton 50/50 Stormwater Management Fund & Green Stormwater and Landscaping

Eligible applicants: Landowners and developers

Summary of program: An incentive program for landowners and developers to implement green infrastructure practices that exceed the requirements of the City of Binghamton Erosion Control and Stormwater Management Ordinance. Approved projects are eligible for a 50 percent match, not to exceed

\$25,000, toward the cost of installation of green infrastructure. Developments funded through this program will function as case studies to demonstrate the cost, construction techniques and maintenance requirements of green infrastructure.

Project state funded: Pilot and implementation
Frequency grant released: Ongoing – end date and whether program will be repeated is unknown.
Tracking/reports: N/A at this time
Website: <http://www.binghamton-ny.gov/grant-opportunities>
Contact: Jennie Skeadas-Sherry, City of Binghamton, 607-772-7028

City of Binghamton Green Stormwater and Landscaping Management Fund

Eligible applicants: Residential property owners, non-profits, and small business owners in the City of Binghamton.
Summary of program: This grant was created to help homeowners and businesses pursue small green infrastructure projects that will contribute to the City's resilience to flooding and help improve water quality. Total project area must be less than 5,000 square feet
Project state funded: Implementation
Frequency grant released: Ongoing until December 2014
Tracking/reports: N/A at this time.
Website: <http://www.binghamton-ny.gov/grant-opportunities>
Contact: Jennie Skeadas-Sherry, City of Binghamton, 607-772-7028

Onondaga County "Save the Rain" Program: Green Improvement Fund (GIF)

Eligible applicants: Owners of a commercial business or not-for-profit facility located within the Green Improvement Fund boundary.
Summary of program: The grant is intended to offer assistance to applicants installing GI technologies as an aspect of the development, and/or retrofitting of certain classes of privately owned properties (commercial, business, and not-for-profit owned properties) in specific geographical locations within the Clinton, Harbor Brook, and Midland combined sewer system, as outlined in the Green Improvement Fund Program Boundary Map, and generally located in the City of Syracuse.
Project state funded: Implementation
Frequency grant released: Annually.
Tracking/reports: Previously funded projects are documented on the below website.
Website: <http://savetherain.us/green-improvement-fund-gif/>
Contact: Onondaga County Department of Water Environment Protection, 315-435-2260

Onondaga County "Save the Rain" Program: Suburban Green Infrastructure Program (SGIP)

Eligible applicants: Municipal entities within Onondaga County that are planning projects to reduced inflow and infiltration to the sanitary sewer system. Projects must be on municipal property within the Onondaga County sewer system.
Summary of program: The program is designed to support the development of green infrastructure and stormwater mitigation techniques on public property within the Onondaga County sanitary sewer district but outside of the City of Syracuse
Project state funded: Implementation

Frequency grant released: Unknown – funding was offered in 2012 and 2013

Tracking/reports: Previously funded projects are documented on this website:
<http://savetherain.us/suburbs-green-projects/>.

Website: <http://savetherain.us/sgip/>

Contact: Onondaga County Department of Water Environment Protection, 315-435-2260

Agricultural Nonpoint Source Funding Programs

New York State Agricultural Environmental Management (AEM) Program

Eligible applicants: County Soil and Water Conservation Districts administer and implement AEM at the local level through. SWCDs engage local partners such as Cooperative Extension, NRCS, AEM Certified Planners, Certified Crop Advisors, USDA Technical Service Providers, and agri-businesses

Summary of program: The New York State Agricultural Environmental Management (AEM) Program supports farmers in their efforts to protect water quality and conserve natural resources, while enhancing farm viability. New York's AEM Program helps farmers protect water quality by providing a framework to assess environmental stewardship and coordinate technical and financial assistance from the Federal, State, and local levels to address priority water quality issues on the farm.

Website: www.nys-soilandwater.org

Agricultural Nonpoint Source Abatement and Control Program (ANSACP)

Eligible applicants: Soil and Water Conservation Districts

Summary of program: Competitive financial assistance program available to Soil and Water Conservation Districts that provides funding to plan, design, and implement priority BMPs, as well as cost-share funding to farmers to implement BMPs.

Website: www.nyssoilandwater.org/aem/nonpoint.html

USDA Farm Service Agency (FSA) Programs

Conservation Reserve Program (CRP)

Eligible applicants: Landowners with eligible land

Summary of program: CRP is a voluntary program for agricultural landowners. Through CRP, farmers can receive annual rental payments and cost-share assistance to establish long-term, resource conserving covers on eligible farmland.

Website: <http://www.fsa.usda.gov/programs-and-services/conservation-programs/conservation-reserve-program/index>

Conservation Reserve Enhancement Program (CREP)

Eligible applicants: Landowners with eligible land

Summary of program:

The Conservation Reserve Enhancement Program (CREP) is an offshoot of the Conservation Reserve Program (CRP). CREP targets high-priority conservation issues identified by local, state, or tribal governments or non-governmental organizations. In exchange for removing environmentally sensitive land from production and introducing conservation practices, farmers, ranchers, and agricultural land owners are paid an annual rental rate and incentive payments.

Website:

<http://www.fsa.usda.gov/programs-and-services/conservation-programs/conservation-reserve-enhancement/index>

Debt for Nature (DFN) Program

Eligible applicants:

Landowners with eligible FSA loans and land

Summary of program:

Debt for Nature (DFN) is available to persons with Farm Service Agency (FSA) loans secured by real estate. These individuals may qualify for cancellation of a portion of their FSA indebtedness in exchange for a conservation contract with a term of 50, 30, or 10 years. The conservation contract is a voluntary legal agreement that restricts the type and amount of development that may take place on portions of the landowner's property. Contracts may be established on marginal cropland and other environmentally sensitive lands for conservation, recreation, and wildlife purposes.

Website:

https://www.fsa.usda.gov/Internet/FSA_File/debtfornature07.pdf

Farmable Wetlands Program (FWP)

Eligible applicants:

Landowners with eligible land

Summary of program:

The Farmable Wetlands Program (FWP) is a voluntary program is designed to restore previously farmed wetlands and wetland buffer to improve both vegetation and water flow. Participants must agree to restore the wetlands, establish plant cover, and to not use enrolled land for commercial purposes.

Website:

<http://www.fsa.usda.gov/programs-and-services/conservation-programs/farmable-wetlands/index>

USDA Natural Resources Conservation Service (NRCS) Programs

Agricultural Conservation Easement Program (ACEP)

Eligible applicants:

Landowners with eligible land

Summary of program:

The Agricultural Conservation Easement Program (ACEP) provides financial and technical assistance to help conserve agricultural lands and wetlands and their related benefits. Under the Agricultural Land Easements component, NRCS helps Indian tribes, state and local governments and non-governmental organizations protect working agricultural lands and limit non-agricultural uses of the land. Under the Wetlands Reserve Easements component, NRCS helps to restore, protect and enhance enrolled wetlands.

Website:

<http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/acep/>

Agricultural Management Assistance (AMA) Program

Eligible applicants: Landowners with eligible land

Summary of program: The Agricultural Management Assistance (AMA) provides financial and technical assistance to agricultural producers to voluntarily address issues such as water management, water quality, and erosion control by incorporating conservation into their farming operations.

Website: <http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/ama/>

Conservation Stewardship Program (CSP)

Eligible applicants: Landowners with eligible land

Summary of program: The Conservation Stewardship Program (CSP) helps agricultural producers maintain and improve their existing conservation systems and adopt additional conservation activities to address priority resources concerns.

Website: <http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/csp/>

Environmental Quality Incentives Program (EQIP)

Eligible applicants: Landowners with eligible land

Summary of program: The Environmental Quality Incentives Program (EQIP) is a voluntary program that provides financial and technical assistance to agricultural producers to plan and implement conservation practices that improve soil, water, plant, animal, air and related natural resources on agricultural land and non-industrial private forestland. EQIP may also help producers meet Federal, State, Tribal, and local environmental regulations.

Website: <http://www.nrcs.usda.gov/wps/portal/nrcs/main/ny/programs/financial/eqip/>

Healthy Forests Reserve Program (HFRP)

Eligible applicants: Landowners with eligible land

Summary of program: The purpose of the Healthy Forests Reserve Program (HFRP) is to assist landowners, on a voluntary basis, in restoring, enhancing and protecting forestland resources on private lands through easements, 30-year contracts and 10-year cost-share agreements.

Website: <http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/forests/>

Regional Conservation Partnership Program (RCPP)

Eligible applicants: Agricultural or silvicultural producer associations, farmer cooperatives or other groups of producers, state or local governments, American Indian tribes, municipal water treatment entities, water and irrigation districts, conservation-driven nongovernmental organizations and institutions of higher education

Summary of program:

The Regional Conservation Partnership Program (RCPP) promotes coordination between Natural Resource Conservation Service (NRCS) and its partners to deliver conservation assistance to producers and landowners. NRCS provides assistance to producers through partnership agreements and through program contracts or easement agreements.

Website:

<http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/farmland/rcpp/>

Watershed and Flood Prevention Operations (WFPO) Program

Eligible applicants:

States, local governments and Tribes

Summary of program:

The Watershed and Flood Prevention Operations (WFPO) Program provides technical and financial assistance to plan and implement authorized watershed project plans for the purpose of: watershed protection, flood mitigation, water quality improvements, soil erosion reduction, rural, municipal and industrial water supply, irrigation, water management, sediment control, fish and wildlife enhancement, and hydropower.

Website:

<http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape/wfpo/>

Appendix I: New Long-Term Vision for Assessment, Restoration and Protection under the Clean Water Act Section 303(d) Program: Vision, Goals, and Implementation Plan¹

A Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303(d) Program

The Clean Water Act Section 303(d) Program provides for effective integration of implementation efforts to restore and protect the nation's aquatic resources,

where the nation's waters are assessed, restoration and protection objectives are systematically prioritized, and Total Maximum Daily Loads and alternative approaches are adaptively implemented to achieve water quality goals with the collaboration of States, Federal agencies, tribes, stakeholders, and the public

“Prioritization” For the 2016 integrated reporting cycle and beyond, States review, systematically prioritize, and report priority watersheds or waters for restoration and protection in their biennial integrated reports to facilitate State strategic planning for achieving water quality goals

“Assessment” By 2020, States identify the extent of healthy and CWA Section 303(d) impaired waters in each State's priority watersheds or waters through site-specific assessments

“Protection” For the 2016 reporting cycle and beyond, in addition to the traditional TMDL development priorities and schedules for waters in need of restoration, States identify protection planning priorities and approaches along with schedules to help prevent impairments in healthy waters, in a manner consistent with each State's systematic prioritization

“Alternatives” By 2018, States use alternative approaches, in addition to TMDLs, that incorporate adaptive management and are tailored to specific circumstances where such approaches are better suited to implement priority watershed or water actions that achieve the water quality goals of each state, including identifying and reducing nonpoint sources of pollution

“Engagement” By 2014, EPA and the States actively engage the public and other stakeholders to improve and protect water quality, as demonstrated by documented, inclusive, transparent, and consistent communication; requesting and sharing feedback on proposed approaches; and enhanced understanding of program objectives

“Integration” By 2016, EPA and the States identify and coordinate implementation of key point source and nonpoint source control actions that foster effective integration across CWA programs, other statutory programs (e.g., CERCLA, RCRA, SDWA, CAA), and the water quality efforts of other Federal departments and agencies (e.g., Agriculture, Interior, Commerce) to achieve the water quality goals of each state

Timeline for Goal Statements

2014 – Engagement

2016 – Prioritization, Protection, Integration

2018 – Alternatives

2020 – Assessment (Site-specific)

2022 – Evaluate accomplishments of the Vision and Goals

¹ [A Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303\(d\) Program \(PDF\)](http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/upload/vision_303d_program_dec_2013.pdf)

http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/upload/vision_303d_program_dec_2013.pdf

Purpose

The purpose of this document is to describe a new, long-term Vision and associated Goals for the Clean Water Act Section 303(d) Program, as well as present implementation plans for achieving the Vision and Goals. Recognizing the significant input from individual states and the Association of Clean Water Administrators (ACWA), EPA is pleased to present this Vision and these Goals to help guide the realization of our clean water goals in a manner that best reflects lessons learned from the past two decades of CWA 303(d) Program implementation and that anticipates new challenges that are likely to present themselves in the coming years.

How Have We Gone About the Task?

EPA and State program managers launched the effort to develop a new long-term Vision and Goals for the program in August 2011. Following a number of discussions and meetings with program managers and staff, the States generated a comprehensive “wish list” of potential program improvements that was then distilled into key issue threads. Over the span of several months, State and EPA participants discussed these issue threads and formulated both a working draft Vision and six Goal statements that would significantly contribute to achieving that Vision.

Throughout the development of the Vision and Goals, EPA and the States were guided by the preeminent importance of successful implementation of our CWA assessment, restoration, and protection activities, in the context of ensuring the use of good scientific and technical information and methods, having appropriate and relevant water quality standards, engaging individuals and organizations that have a role in reducing nonpoint as well as point sources of pollution, facilitating the use of listing and TMDL information by stakeholders, and assessing results to guide adaptive management strategies. EPA and the States recognize that the CWA Section 303(d) Program is only one part of the CWA and one part of how we can drive water quality attainment, but it is a key part – translating the water quality standards and goals of States into analyses and pollution reduction targets that describe a path to clean water. In the summer of 2012, the States and EPA provided the draft Vision and Goals to external stakeholders for their review. As a result of that stakeholder review, additional modifications were made to this document, including clarifications of the Goal statements.

In a parallel effort, in the fall of 2012, the States and EPA also initiated a workgroup to discuss creation of measures that would help track the CWA 303(d) Program’s success in light of the new Vision and Goals. The workgroup was tasked with developing a new measure or a set of metrics that would balance (1) State diversity in implementing the Vision and its Goals, (2) the need for national aggregation of information to communicate overall program progress, and (3) guiding principles for measures compiled by the States and EPA over the previous year (for example, measures that reflect incremental progress, are outcome-oriented, and consider reporting burden).

The revised Vision and Goal statements were presented (along with several suggested approaches for program measures, and preliminary implementation plans for Prioritization and Assessment Goal statements), and well-received, at the February 2013 ACWA mid-year meeting.

To provide more detail on the path for achieving the long-term Vision and Goals of the CWA 303(d) Program, the States and EPA developed implementation plans for each Goal statement that contain action milestones and timelines to help States build their individual strategies to achieve the CWA

303(d) Program Vision. These Vision Goal Statements and their implementation plans and milestones, reflect discussions among almost every State, three Tribes, the District of Columbia, Puerto Rico, an interstate organization and EPA at an April 2013 State/EPA Workshop. While no Tribe currently administers the CWA 303(d) Program, Tribal, State and EPA representatives recognize the importance of Tribal perspectives and concerns in implementing the CWA 303(d) Vision.

The revised Vision and Goals , along with the near-final draft implementation plan, were presented at the ACWA meeting in August 2013. Additionally, external stakeholder input was sought on that draft. The product of these extensive efforts is today's version of the Vision and what the States and EPA are now implementing.

Important Considerations

The Vision and Goals presented here are designed to help coordinate and focus EPA and State efforts to advance the effectiveness of the Clean Water Act Section 303(d) Program direction in the coming decade. Prior to this effort, CWA 303(d) Program direction largely had been described through broader CWA program management goals and specific performance measures, such as the EPA's annual National Water Program Guidance and the States' water quality commitments. It is expected that such program goals and performance measures will evolve to reflect this new long-term Vision and Goals, with such changes being proposed and reflected as a part of those processes.

This new, long-term Vision and associated Goals are not regulation, policy, or new mandates. They do, however, provide focus for EPA and State efforts to better manage the CWA 303(d) Program activities to achieve water quality goals for the Nation's aquatic resources such as streams, rivers, lakes, estuaries and wetlands. States and EPA retain their flexibility in how they implement their CWA 303(d) Program responsibilities (including, specifically, identification of impaired waters and development of TMDLs) consistent with existing statutory and regulatory authorities and their individual priorities.

The Goal statements are presented in an order beginning with the cornerstone Goals of Prioritization and Assessment – with the Prioritization Goal as the foundation to guide planning and implementation of the other Goals, and the Assessment Goal to develop a full understanding of the condition of priority areas identified. The next two Goals of Protection and Alternatives pertain to actions that a State may consider to advance its water quality objectives, in addition to TMDL development. Finally, under the Integration and Engagement Goals, coordination of the CWA 303(d) and other CWA program objectives and involvement of stakeholders around mutually identified priorities are key themes to deal with the technical challenges of water quality restoration and protection, limited funding and other resources, and the specific objectives of individual States and their public. The Engagement Goal is a key means to implement the Vision and as a result, is expected to be initiated immediately.

States and EPA encourage their CWA 303(d) Program managers to adopt the Vision concept. We anticipate this Vision will be implemented at two levels. At one level, State and Federal program managers work together and measure their collective progress. At another level, States individually employ their specific strategies to achieve the overall Program Vision and their own specific goals; in concert with the public, States may develop a Vision strategy that outlines a comprehensive, integrated, and iterative approach to addressing the challenge of achieving and communicating water

quality improvements. We believe such State-level Vision strategies can be generated through evaluating the Goals of the long-term Vision at the individual State level. The intent is to generate, through thoughtful discussion and debate, ideas and information on workable approaches for developing and implementing State efforts to achieve the Goals of the Vision and, ultimately, each State's water quality standards. Thus, there will likely be variability in State strategies to achieve the Vision.

Relationship to EPA Strategic Plan Measures for the CWA 303(d) Program

There are also implications for reshaping relevant EPA Strategic Plan measures that reflect the new Vision and Goals. Previous performance measures for the Program have served to draw attention and effort to areas important during those times, such as tracking the number of TMDLs approved. Although it is expected that TMDLs will continue to be the primary feature of the Program, the Program will become better positioned as States and EPA work with stakeholders to carry out this Vision and Goals, to meaningfully capture implementation success through a new measure. States will have flexibility in developing strategies to achieve their Vision Goals, producing information that national tracking will report through a new national measure, and additional metrics, to communicate overall progress and provide accountability.

A workgroup of States and EPA is developing a metric to replace, by FY 2015, the simple tally of TMDLs completed with one that measures the extent of State priority waters addressed by TMDLs or alternative approaches in impaired waters or by protection approaches in waters of existing good quality. The metric will have a defined universe, baseline, and annual targets. Recognizing that TMDLs and alternative approaches may take several years to be developed, and that States engage in actions outside of priority areas, a complementary measure also is envisioned to track incremental progress toward development of TMDLs or alternative approaches in priority areas, as well as such activities outside of priority areas. This complementary metric approach will provide the opportunity for States not only to report on their focused progress within their priority waters, but also to communicate overall progress.

Prioritization Goal

For the 2016 integrated reporting cycle and beyond, States review, systematically prioritize, and report priority watersheds or waters for restoration and protection in their biennial integrated reports to facilitate State strategic planning for achieving water quality goals

The intent of the Prioritization Goal is for States to express CWA 303(d) Program priorities in the context of the State's broader, overall water quality goals. The CWA 303(d) Program provides an integrating function because it translates state water quality standards into pollution reduction targets for the point source permitting and nonpoint sources management programs as well as other programs outside the CWA. Linking the CWA 303(d) Program priorities with those of other programs can aid in strategically focusing limited State resources to address priority waters through water quality assessments, TMDL or alternative approaches, water quality protection strategies, implementation actions and follow-up monitoring. Establishing CWA 303(d) Program priorities will lead to more efficient and effective program management, yielding faster progress toward water quality improvement and protection.

While existing CWA 303(d) statutory and regulatory obligations remain in force (including requirements to identify impaired and threatened waters and develop TMDLs for such waters according to a priority ranking and schedule), we believe these requirements can be implemented through the lens of a State's prioritization framework. Prioritization provides a framework for focusing the location and timing of TMDL development efforts and/or alternative actions that are best suited to the water quality goals of each state. In addition to identifying high priority waters, it is also important to identify those waters that will be a lower priority for TMDL development.

The State's CWA 303(d) priority framework should be transparent to the public and clearly address how the States will implement the CWA 303(d) Program Vision and work toward the associated Goals over the next decade. The priorities provide the foundation to guide the planning and implementation of the other CWA 303(d) Vision Goals, and States and EPA will work collaboratively in defining them. Important venues for such State/EPA collaboration include the Performance Partnership Agreement/Performance Partnership Grant (PPA/PPG) discussions and development of CWA State Water Quality Management Plans and CWA Integrated Reports (IRs). The IR process, with its existing provisions for public notice and comment as well as prioritization for TMDL development, is a logical repository for such State prioritization efforts, even if such efforts are developed in other venues such as PPA/PPGs.

States and EPA envision using existing and emerging tools to help develop the priority frameworks. For example, state-wide probability-based water quality surveys can assist States in identifying, based on the State WQS, particular pollutants/stressors and/or geographic areas of the State that may warrant particular attention. Tools like Recovery Potential Screening are emerging as beneficial to States to consider where to invest their efforts for the greater likelihood of success, based on the traits of their geographic area's environment and communities. Some States may have an existing

prioritization process that addresses many of these issues (e.g., use of the rotating basin approach) and thus, States may include their existing efforts as appropriate.

Milestones and Proposed Timeline

- 1) ACWA surveys States on their current approaches and rationales to prioritizing water quality restoration and protection (e.g., PPA/PPG discussions, biennial impaired waters list, State Water Plans) to establish a baseline of prioritization philosophy. (2013)
- 2) States provide to EPA, through ACWA, good examples of systematic prioritization processes/products of States, including emerging TMDL Vision Strategies. (2013)
- 3) EPA and States collaborate on a workshop to present tools to aid priority-setting, such as the Recovery Potential Tool, Healthy Watersheds Initiative, and wetland restoration priority setting tools, as well as to address data availability issues and develop a template to account for State reporting on priorities for TMDL or alternative approaches. (2014)
- 4) EPA provides training on tools to assist States in the use of State-scale statistically representative survey results for prioritization. (2014)
- 5) EPA includes in IR guidance for 2016 examples of how IR reporting process can house/reference State prioritization reports, including the appropriate definition and metric for such reporting. (2015)
- 6) States house/reference State prioritization reports in 2016 IRs, including: priority lists of waters slated for near term (~2 year) TMDL development or alternative approaches; priority waters scheduled for likely TMDL development or alternative approaches over 2016 - 2022; priority waters awaiting management to protect their current condition from degradation; and/or the strategic rationale of the State in setting these priorities, which may include customized Vision Strategies. (2016)

Assessment Goal

By 2020, States identify the extent of healthy and CWA Section 303(d) impaired waters in each State's priority watersheds or waters through site-specific assessment

The purpose of this Goal is to encourage a comprehensive understanding of the water quality status of at least each State's priority areas. These assessments are a key step in ensuring that appropriate management actions can be taken to protect and restore these waters. Detailed assessments of the nation's waters have been a challenge given the number and extent of waters, the variety of pollutants that could affect them, and the limited resources available to undertake the task. States and EPA recognize that given these challenges it is important to be strategic about how limited monitoring and assessment resources are deployed.

Most states employ a combination of cost-effective monitoring and assessment approaches to address CWA data needs. The most widely used approaches include: targeted data collection to characterize site-specific water quality conditions; statistically representative survey designs to describe water quality conditions across a basin or State; and, modeling, literature values, and reference watersheds to predict water quality conditions or impacts from individual dischargers or sources of pollutants. Advances in technology and data transmission offer potential for improvements in the amount of data available and the efficiency of data interpretation. States and EPA will continue to apply existing tools and explore new ones as appropriate to assess and track changes in the extent of impaired and healthy waters in priority areas, at the State-scale and nationally in order to assess progress toward CWA goals.

A comprehensive understanding of the water quality status of at least the State priority areas is essential to effectively address the water quality challenges in the priority areas and to effectively measure the progress on the CWA 303(d) Program performance. As a general matter, targeted monitoring is expected to be the primary approach for accomplishing the comprehensive assessment of States' priority areas. However, some States may also use the results of state-wide or sub-state representative surveys when the results of such approaches may be compelling enough (i.e., have a high degree of confidence) to support site-specific water quality attainment decisions.

Milestones and Proposed Timeline

- 1) States and EPA develop and distribute tools to support consistency in cycle-to-cycle tracking of water quality status. (2016)
- 2) States and EPA develop and publish approaches to ensure linkage between priority waters and assessment units, and how to roll up different State approaches into a National total. (2018)
- 3) States develop plans to complete "baseline" monitoring to gather needed data to assess pre- implementation conditions in priority areas. (2018)
- 4) States develop plans to complete "effectiveness" monitoring to gather needed data to assess post-implementation conditions in priority areas. (2018)

Protection Goal

For the 2016 reporting cycle and beyond, in addition to the traditional TMDL development priorities and schedules for waters in need of restoration, States identify protection planning priorities and approaches along with schedules to help prevent impairments in healthy waters, in a manner consistent with each State's systematic prioritization

The intent of the Protection Goal is to encourage a more systematic consideration of management actions to prevent impairments in healthy waters (i.e., unimpaired waters) in order to maintain water quality or protect existing uses or high quality waters. Although protection of healthy waters is envisioned specifically as an objective of the CWA – “restore and maintain the chemical, physical, and biological integrity of the nation's waters” – substantial resources to date have been focused on restoring impaired waters; protection efforts have lagged. Protection and restoration are interdependent goals regarding the “integrity of the nation's waters.” Protection of healthy headwaters and wetlands, for instance, helps reduce downstream restoration challenges and costs, while restoration reduces risks to adjacent protected, healthy waters. Successful restoration of impaired waters can lay the foundation for committed and continued protection of those same waters.

Although not all States may ultimately choose to use protection approaches, opportunities for protection within the context of state-wide water quality goals can be an important component to achieving water quality objectives. For example, setting CWA 303(d) Program priorities could involve consideration of the restoration potential of impaired waters adjacent or upstream to healthy watersheds. Such coordinated efforts could lead to realizing more effective results than isolated, individual protection or restoration actions. Also, under the protection Goal, healthy waters at risk of becoming impaired, could be identified as part of the CWA 303(d) Program prioritization process.

Some States have used their CWA 401 certification or antidegradation programs to protect healthy waters and habitats. Some Tribes have also promoted the concept of protection in their water programs. Protection provisions are included in the CWA 303(d) regulations, including the opportunity to establish TMDLs for information purposes (“informational TMDLs”) or the need to list threatened waters. EPA is also promoting a voluntary Healthy Watershed Initiative whereby it will work with State and other partners to identify healthy watersheds and to develop and implement healthy watershed protection plans to maintain the integrity of those waters. Likewise, States could consider leveraging their existing work to identify high quality waters and Outstanding National Resource waters for antidegradation purposes.

Milestones and Proposed Timeline

- 1) ACWA surveys States on their current approaches and rationales to prioritizing protection of healthy waters (e.g., PPA/PPG discussions, State Water Plans, high quality water designations, protection-based TMDLs, etc.) to establish a baseline of priority philosophy. (2013)
- 2) States provide to EPA, through ACWA, good examples of systematic prioritization processes/products of States, including emerging TMDL Vision Strategies that include aspects of protection. (2013)
- 3) EPA and States collaborate on a workshop to present tools to aid in protecting healthy waters, as well as to develop a template to account for State reporting on protection priorities and schedules. (2014)

Alternatives Goal

By 2018, States use alternative approaches, in addition to TMDLs, that incorporate adaptive management and are tailored to specific circumstances where such approaches are better suited to implement priority watershed or water actions that achieve the water quality goals of each state, including identifying and reducing nonpoint sources of pollution

The purpose of this Goal is to encourage the use of the most effective tool(s) to address water quality protection and restoration efforts. For the past two decades, many TMDLs have been developed in response to litigation. As a result, States and EPA have not always had the opportunity to objectively evaluate whether a TMDL would be the most effective tool to promote and expedite attainment of State water quality standards. With most of their consent decree and settlement agreement TMDLs completed, States and EPA are using their program experience to make more informed decisions about selecting and using the tools that have the best opportunity to restore and protect water quality.

While TMDLs will remain the most dominant program analytic and informational tool for addressing impaired waters, a major focus of this Goal is to identify, evaluate, and promote (as appropriate) other tools (or “alternatives”) that may be more immediately beneficial or practicable to achieving applicable water quality standards under certain circumstances. For example, additional opportunities with long-standing program tools (e.g., Category 4b) will likely be considered along with emerging tools, wherein impaired waters remain on the State’s CWA 303(d) list until water quality standards are attained, but are assigned lower priority for TMDL development as alternatives designed to achieve water quality standards are pursued in the near term. If water quality standards are not fully attained through these alternative approaches, development of the TMDL would be necessary.

Recognizing the importance of effective implementation to achieve water quality standards, another major focus of this Goal is to further explore and identify how principles of adaptive management can most effectively be applied to improve water quality whichever restoration tool is chosen. Adaptive management will help the program incorporate new data and information, identify opportunities and actions to pursue under the Integration Goal of the Vision, and iteratively adjust and integrate subsequent implementation actions to meet water quality standards.

Milestones and Proposed Timeline

- 1) States compile an inventory of current and potential types of State approaches and rationales for pursuing near-term, alternative approaches to the traditional TMDL process (e.g., subcategories of Category 5 for on-going restoration efforts, Category 4b; Category 4c) to address impaired waters. (2014)
- 2) EPA and States collaborate to identify factors or tools to aid States in deciding to pursue a TMDL or a non-TMDL alternative approach. Such factors or tools will address multiple considerations, including opportunities for a weight-of-evidence approach for selecting a TMDL or non-TMDL alternative approach, as well as identify circumstances where a TMDL or non-TMDL alternative are likely to be more successful. (2014)
- 3) EPA and States compile a catalogue of good examples for each type of TMDL alternative approach based on the inventory results and guiding principles. (2014)
- 4) EPA and States collaborate on a workshop and create a blueprint communicating how adaptive management can be applied during the implementation of TMDL and non-TMDL approaches to achieve water quality standards. (2016)
- 5) EPA and States develop a reporting method for tracking non-TMDL approaches employed and their environmental results. (2017)

Engagement Goal

By 2014, EPA and the States actively engage the public and other stakeholders to improve and protect water quality, as demonstrated by documented, inclusive, transparent, and consistent communication; requesting and sharing feedback on proposed approaches; and enhanced understanding of program objectives

The purpose of the Engagement Goal is to ensure the CWA 303(d) Program encourages working with stakeholders to educate and facilitate actions that work toward achieving water quality goals. Facilitating meaningful engagement with the public and stakeholders on watershed goals, the prioritization processes, watershed restoration plans, and necessary watershed actions related to CWA 303(d) is vital. Levels of engagement range from public outreach and communication efforts to more strategic civic and technical engagement for long-term capacity building in the watershed. EPA and States will further explore the various types of engagement and delineate some of the barriers to, and opportunities for, each level of engagement. In addition, an effort to develop a national message for the program (i.e., “branding”) may be beneficial for consistently communicating the Vision and associated Goals to general audiences. Branding of the Program provides a communications umbrella under which States can utilize a common set of talking points for engaging broad audiences, yet have the ability to tailor them when communicating with more specific audiences. It is generally recognized by EPA and States that strategic engagement efforts could be aided by improved communication to develop a CWA 303(d) Program brand that would enable the public to more readily identify and support water quality restoration and protection goals and actions. An engagement strategy for this Goal will consider effective methods currently employed by States, and identify ways engagement efforts and strategies support other Vision Goals such as Prioritization, Alternatives, and Integration.

Milestones and Proposed Timeline

- 1) States develop (or enhance an existing) framework or strategy to engage the public and other stakeholders. A public engagement strategy will identify key opportunities and actions to: communicate the Vision Goals to the public and other stakeholders and encourage their participation in achieving them; provide information about the purpose and critical importance of the program; and, encourage their participation in the process of listing and developing TMDLs or alternatives. (2014)
- 2) States develop a framework to ensure they have data to measure each Goal, with the aim of communicating the most relevant outputs and/or outcomes to key stakeholders in their state, and informing the public about their progress and accomplishments. (2015)
- 3) EPA develops a strategy for communicating results of Federal and State progress in implementing the Program-wide Vision. (2015)
- 4) States share success stories and/or lessons learned regarding engagement and report to EPA and ACWA. (2017)

Integration Goal

By 2016, EPA and the States identify and coordinate implementation of key point source and nonpoint source control actions that foster effective integration across CWA programs, other statutory programs (e.g., CERCLA, RCRA, SDWA, CAA), and the water quality efforts of other Federal departments and agencies (e.g., Agriculture, Interior, Commerce) to achieve the water quality goals of each state

The intent of this Goal is to integrate the CWA Section 303(d) Program with other relevant programs that play a role in influencing water quality, in order to collectively and more effectively achieve the water quality goals of States, Tribes, and Territories. Because TMDLs are not self-implementing, effective integration of key programs – especially key CWA programs (listing and TMDLs, water quality standards, monitoring and assessment, CWA 319, CWA 404, and NPDES) that encompass assessment and point source and nonpoint source control actions – is important to realize the pollutant reduction goals identified in TMDLs or alternative approaches. It also is important that integration occur among the different offices in charge of CWA programs within a department or agency as well as between and among local, State, Federal and tribal jurisdictions. Interaction between agencies and non-governmental interests also may promote effective implementation. Integration is particularly important for addressing impairments caused by nonpoint sources of pollution, especially in watersheds crossing multiple jurisdictions and those involving different CWA programs. A consequence of not integrating effectively is less successful implementation, especially for TMDLs or alternative approaches that include sources of nonpoint pollution that typically lie outside the regulatory reach of the CWA.

This Integration Goal aims to overcome barriers in coordination by aligning diverse program goals for mutual benefit. To achieve this, cross-program education will be important, in addition to active leadership and engagement among groups managing these key programs. Sharing of institutional knowledge and the history of established networks will enable the next generation of State and EPA employees and managers to sustain integrated successes.

Milestones and Proposed Timeline

- 1) The following milestones are expected to occur within the States and EPA in parallel efforts.
 - a) States and EPA (HQ and Regions) individually bring their CWA programs together to identify areas for improved coordination and partnership and develop a plan for fostering better communication and coordination moving forward. (2014)
 - b) States and EPA individually bring other applicable statutory program representatives and partner agencies together to identify areas for improved coordination and partnership and develop a plan for fostering better communication moving forward. (2014)
- 2) States and EPA communicate the results of these discussions, at the regional level with the pertinent States and EPA Region, or at national level with all States and all EPA Regions and HQ. (2015)
- 3) ACWA surveys States for good example case-studies of such key collaboration efforts among CWA programs, other EPA statutory programs, or external partner agencies or authorities (as available). (2015)
- 4) EPA and States collaborate on a workshop to discuss and identify the most important actions, partnerships, and authorities for the States and EPA to pursue in the near-, mid-, and long-term, with each program partner. (2016)
- 5) States and EPA initiate implementation of near-, mid-, and long-term actions. (2016)