State Water Quality Management Resource Analysis

– *Interim Report on Results* –

April 1, 2002

Prepared for:

State Water Quality Management Resource Analysis Task Force

State Task Force Members

Many people were involved in the various aspects of the Resource Analysis process, including State program managers, State technicians, and EPA staff. Their input was invaluable to the success of the process and the products generated thus far. We would like to particularly acknowledge the dedication and commitment of the State Task Force members:

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Contents

Executive Summary

In December 1998, States and EPA decided that a mechanism was needed to more accurately articulate the status of State expenditures for managing water quality programs, and to estimate the unmet need for resources to fully implement the federal Clean Water Act. A national data collection effort was launched to gather information on expenditures, develop forecasting tools, and report results to key decision makers and other interested parties.

The purpose of this interim report is to provide information about the current status, to describe the results thus far, summarize conclusions, and make recommendations for future actions.

Initial Results: States were surveyed to obtain data on annual expenditures for water quality program management, and estimates of current resource need. The following table summarizes the expenditures and needs estimates reported to date, and the estimated current resource gap:

ESTIMATE OF CURRENT WQ MANAGEMENT RESOURCE GAP

Resource Needs minus **Expenditures** = **Resource Gap**

$1.54-1.68 Billion - $722-805 Million =

$735-960 Million

Conclusions: The message that can be most clearly drawn from the Resource Analysis is that there is nationally a significant gap in resources needed by states for managing water quality programs. At the highest level of aggregation, this resource gap indicates that state agencies are receiving less than one-half of the resources that they need to fully implement the requirements of the federal Clean Water Act. That State agencies do not receive nearly enough resources to implement water quality programs is not news to State program managers; however, the magnitude of the current resource need gap (about $800 million) is significantly larger than previously estimated in other national reports.

Further, of the resources State agencies do receive for implementing federally required programs, only about 30% or less comes from federal sources. States have come up with a variety of approaches for funding water quality programs: annual State general fund appropriations; special restricted or dedicated funds; imposition and collection of fees; bond sale proceeds; and tax assessments, among other sources. Recent increases in federal funding (namely through

Sections 106 and 319 programs) have helped to bring federal contributions slightly closer to parity with those of states; however, there is still a long way to go.

States are in a delicate balancing game, wherein existing and established programs must be implemented, while new program directions and areas of emphasis are looming overhead. All of these programs are required, not optional. Many states report that existing and core programs are underfunded, yet new program demands lead to further erosion of finite resources for core programs. Part of the Resource Analysis included polling states to find out what they were doing to create efficiencies and otherwise streamline management of water quality programs. A summary of these optional operating practices is included as Appendix D of this report.

Recommendations: Based on the results and conclusions drawn from this first cycle of the management resource analysis, these are the recommendations from the State WQ Task Force:

Minimize the Gap: The Resource Analysis has already helped to increase funding for water quality programs. The recent increases in Section 106 can be considered a down-payment on the resource gap. We recommend that a good goal for funding should be to achieve parity between federal and State contributions to water quality programs, and that future federal funding should be indexed or otherwise structured so that parity can be achieved within 10 years.

Maximize Flexibility: Federal funding should also take into consideration the variability between states in terms of how each State manages and administers water quality programs. Maximum flexibility should be allowed States in terms of application and uses of federal contributions. Federal program managers should also recognize that States need flexibility to meet State priorities, and to accommodate a balance between core programs and new or expanding program directions.

Resource Analysis, a process not a product: A lot of work has gone into the Water Quality Management Resource Analysis by many State and EPA program managers and technical staff. It has already proven to be invaluable as a means to help support requests for funding increases at both federal and State levels. A key component of the Resource Analysis is the workload model that was developed to help states assess resource needs. We recommend that States be given the opportunity to update the Resource Analysis in 2003-4 and every two years thereafter, and that EPA identify mechanisms to incorporate data from other federal reporting.

A Model for States: We strongly encourage States to use the workload model as their own *State* tool for estimating program needs, determining fiscal impacts of implementing new elements or expanding existing programs, and as a template for program design. States may also share information about their programs and use the information generated from the Resource Analysis model to make program-level comparisons with other States.

State Water Quality Management Resource Analysis:
Interim Report on Results

1.0   Overview

Federal and State governments have invested substantial funds to support programs designed to address the requirements set forth under the Clean Water Act (CWA).   In spite of the ongoing investments and the continuing progress made toward these goals, many States face shortfalls in the resources necessary to support the management of required CWA programs. This report describes the joint effort that EPA and States have undertaken to quantify and articulate the resource 'gap' faced by State water quality management programs.

The 'gap' is defined as the difference between the resources currently available for management of State water quality programs (as measured by State expenditures) and the resources needed to manage and implement these programs in a manner that enables States to achieve the environmental and public health goals of the CWA.

The State Water Quality Management Resource Analysis covers only State management activities; it does ***not*** cover infrastructure improvements or the activities of local entities or non-governmental organizations, such as the implementation of best management practices (BMPs).[1] Costs for these activities are being investigated under a separate effort. Activities associated with meeting the objectives of the Safe Drinking Water Act (SDWA) and most groundwater-related activities are also excluded from this gap analysis since they are being addressed by the drinking water program's gap analysis. Appendix A of this document provides detailed information on the activities covered under the State Water Quality Management Resource Analysis.

The Resource Analysis consists of two separate, yet complementary data collection efforts: (1) development of a mechanism for states to determine and report water quality management resource needs (the State Water Quality Management Resource Needs Model), and (2) a survey to determine how much states are currently spending on management of water quality programs. These efforts are discussed in detail in the following sections.

1.1   *State Water Quality Management Resource Needs Data Collection*

To enable the collection of consistent data on resource needs from a diverse collection of States, EPA supported the development of a nationally-applicable spreadsheet model. The model comprises a series of worksheets that assist individual States in estimating the financial and personnel resources required to manage the water quality programs necessary to meet the objectives of the CWA. The model was designed to be flexible enough to provide individual

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[1] Therefore, Clean Water State Revolving Fund (CWSRF) loans and Section 319 grants are **excluded** from the analysis. However, the costs associated with planning and management for these loans and grants are **included**.

States with a mechanism to estimate their own specific resource needs, yet sufficiently structured to provide a defensible national estimate of total State resource needs and thereby support efforts to increase federal funding to State programs, as necessary. States were involved in every stage of the model development process.

Five focus group meetings were held between June 1999 and February 2000. All States were invited to participate in each of these meetings. In addition, EPA Headquarters and Regional program staff participated, as did other stakeholders, including representatives from both the Association of State and Interstate Water Pollution Control Administrators (ASIWPCA) and the Environmental Council of States (ECOS).

Each meeting focused on specific program areas within the larger context of a State's overall water quality program. Each program area became a 'module' in the final resource needs model. States with particularly well-developed programs and/or nationally recognized programs in particular areas (e.g., monitoring, wetlands) were especially encouraged to attend the focus group meetings for those program areas. At the recommendation of State participants, the meetings were held in different locations and hosted by different States. The five focus group meetings were held in Albany, New York; Madison, Wisconsin; Reston, Washington; Atlanta, Georgia; and Washington, DC.

By consensus, focus group participants developed a list of activities for each program area, along with estimates of the work effort (or other resources) required to conduct these activities. These estimates were adopted as the default values for the hypothetical 'typical' State. Draft modules were developed following each focus group meeting and then distributed to all States for comment. A description of program-specific efficiencies identified during the focus group discussions was also distributed. Contact numbers were provided with all materials to enable State personnel to ask questions regarding the efficiencies, activities identified in the modules, the default values built into the modules, or the State Water Quality Management Resource Analysis effort itself. In addition, the draft modules were made available for review and comment on an EPA-administered web site.

Each module was revised based on comments received from States and other stakeholders. The revised modules were then sent to two or three States for beta-testing and additional, in-depth review and evaluation. After beta-testing, additional refinements were made to each module prior to its finalization.

In total, 14 separate modules were developed: Permitting, Compliance, Enforcement, Septage, Non-point Source Control, Total Maximum Daily Load (TMDL) Development, Wetlands, Coastal and Marine, Water Quality Standards, Monitoring, Reporting and Planning, Clean Water State Revolving Fund (CWSRF) and Grant Management, Data Management, and Regional Initiatives. Together, these modules comprise the final *State Water Quality Management Resource Needs Model*.

A summary meeting was convened in February 2000 to provide States with an opportunity to view the model as a whole. Specifically, State representatives were asked to identify program areas or activities that may have been overlooked or, conversely, those that may have been double-counted. In addition, meeting participants were provided with a final opportunity to review the default estimates built into the model as representative of a 'typical' State. At this meeting, the base assumptions underlying the model were reaffirmed and individual activities were defined more precisely to ensure that all States would consider the same objectives when entering data into the model.

State and stakeholder participation during the model development process was essential to its success. Nearly two-thirds of the States participated in the model development effort. Eighteen States attended at least one focus group meeting and seven participated in at least four of the five meetings. Fourteen different States submitted comments on various draft modules. In addition, eight non-governmental organizations (NGOs), including ASIWPCA, ECOS, and the New England Interstate Water Pollution Control Commission (NEIWPCC), provided input during focus group meetings. A complete list of all participants is provided in Appendix B.

1.2   Survey of Current State Expenditures

In December of 1999, ECOS circulated a survey to States requesting information on current annual expenditures for managing water quality programs. The survey was sent to the State's environmental director with a recommendation that the survey be completed by a team of water quality program managers and budget/financial staff. The survey covered the same program areas as the *Resource Needs Model* and provided States with a list of activities to consider within each program area based on their classification in the model.[2]

While the needs model requested information on the work effort (FTEs) and additional resources required to complete individual activities within the 14 different program areas, the expenditures survey simply requested that States estimate the percentage of their total expenditures allocated to each program area; specific FTE and financial resource estimates were not requested for program areas. The expenditures survey also asked States to identify the sources of funding for their water quality management programs.

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[2] Several small revisions were made to the *Resource Needs Model* between the time that the Current Expenditures survey was first distributed and the time when the model was finalized and downloaded by States to estimate their resource needs. However, these revisions were sufficiently minor that the results from the two efforts remain comparable at the top level (i.e., overall State water quality program management).

2.0   Initial Results

2.1   National Resource Need

The average State need predicted by the model's default values is $26,125,980 per year. The average State need based on participating State data (calculated as discussed in section 4.0, below) is $30,679,960 per year (California excluded from this average). The 22 States submitting complete or nearly complete data report a total need of $791,578,728 per year. The extrapolation methodology described in Section 4.1 below suggests that the total nationwide need is somewhere between $1.540 billion and $1.679 billion per year.

National Resource Need for Managing State Water Quality Programs

$1.54 to $1.68 Billion per Year

This total does not include needs of Washington, D.C., the Insular Areas (i.e., Puerto Rico, the Virgin Islands, American Samoa, Guam, or the Northern Marianas), interstate agencies, or Tribes.
Figure 1 illustrates how States reported their needs by program area:

Figure 1. National Average Resource Need for Managing State Water Quality Programs, by Program Area
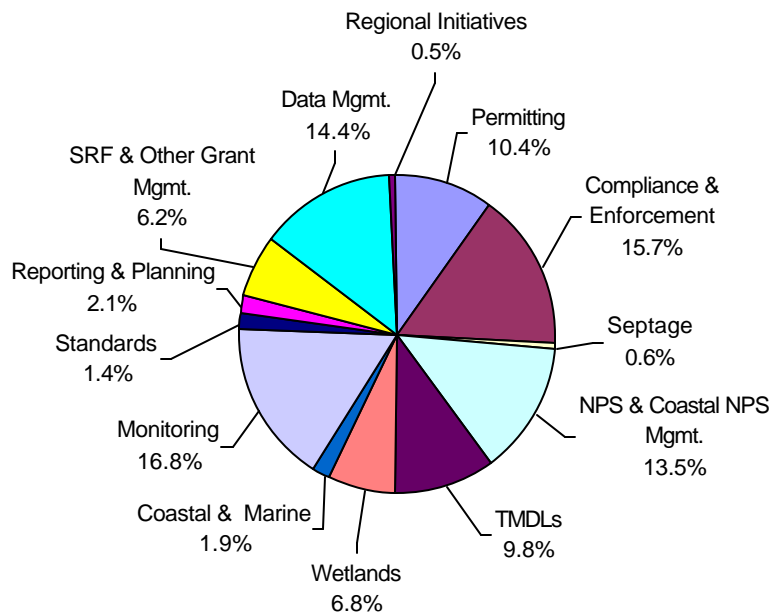
(Note: The percentages shown in Figure 1 are not directly comparable to a similar chart showing current expenditures reported by program area (See Figure 2). This is because the data for expenditures, collected at an earlier time, was not collected in the same manner as the needs data. Future data collection efforts will align the two processes to make data more comparable at the program level.)

States reported that substantially more full time equivalents (FTEs) are necessary to fully implement CWA programs than are currently available. States identified an average need for 307 FTEs, with the smallest reported need for a single State being 106 FTEs. Note that these figures include water quality staff in local field offices performing oversight and management activities as well as staff in agriculture departments or other agencies outside the State's water quality division, but whose activities contribute to the achievement of CWA objectives.

However, States also reported that even with increased funding their FTE need might not be met. Many State agencies operate under legislatively-imposed FTE caps and cannot readily hire additional staff even if resources become available. In some states, the labor market cannot provide the level of expertise needed, and advertised positions may go unfilled. States suggested that, along with any increases in funding, more flexibility be allowed for using funds such as outside consultants and contractors, or designing strategies to streamline and otherwise reduce the workload associated with certain activities.

2.2   Current National Expenditure

The 37 States responding to the current expenditures survey reported a total of $552,658,495 in spending on the water quality management programs covered by this analysis during the last fiscal year.[3] Based on the methodology described in Section 3, above, total nationwide expenditures for the management of State water quality programs are estimated to be between $721.5 million and $805.0 million per year. This estimate does not include Washington, D.C., Tribes, the Insular Areas, or interstate agencies.

National Expenditure for Managing State Water Quality Programs

$722 to $805 Million per Year

Figure 2 below illustrates how State expenditures were reported by program area. The percentages shown are based on an average of the percentages reported by States.

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[3] Most States provided data on fiscal year (FY) 1999 expenditures.

Figure 2. State Expenditures on Water Quality Management Programs, By Program Area
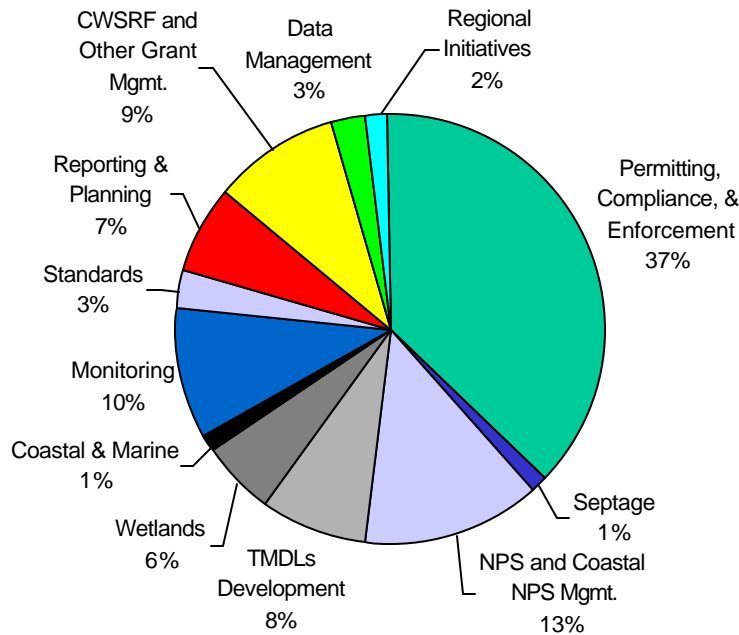
* Note: Current *expenditures* reported for individual program areas may not be directly comparable to *needs* reported for same program area due to differences in the manner in which data was reported.

States also reported that funds for managing water quality programs came from a variety of sources (see Figure 3 below). Overall, about 40% of funds for State water quality program management came from State tax revenues, with approximately 31% from federal contributions. State fee revenue made up nearly 19% of total expenditures, with other sources of funding, including bond funds, restricted trusts, special funds, and special taxes comprising the remaining 10%.

Figure 3. Current State Expenditures: Sources of Funding

Other*
10%

State Fee
Revenue
19%

State Tax
Revenue
40%

Federal
Contribution
31%

*Other funding includes
bond funds, restricted
trusts, special funds, and
special taxes.
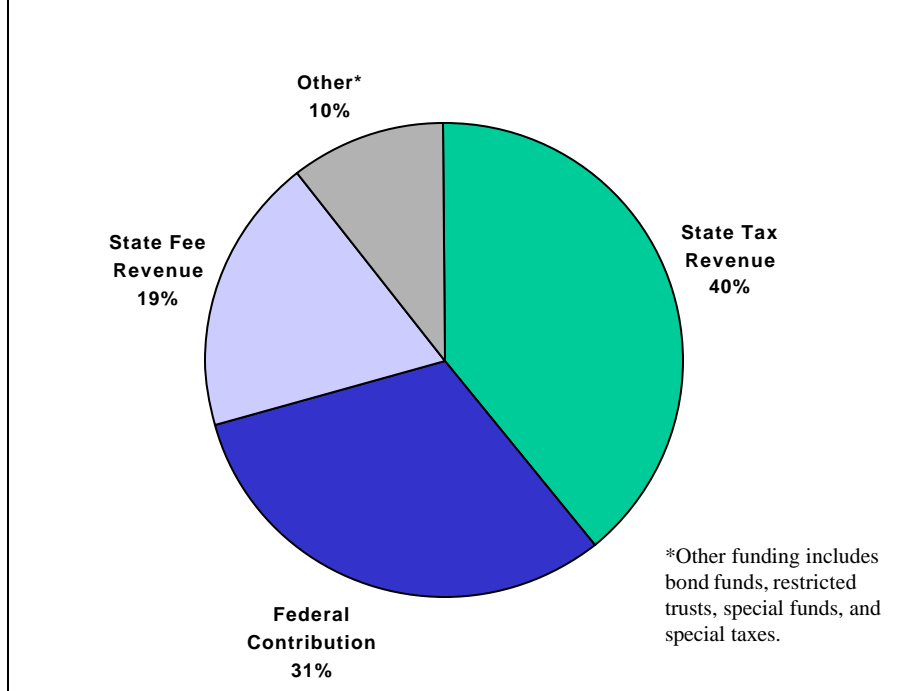
2.3   National Resource Gap

Comparing the national estimate of current State expenditures with that of State needs illustrates
that States are spending just under *half* of what they need to achieve the objectives of CWA. The
nationwide resource shortfall facing State's for managing water quality programs is estimated to
be between $735.0 million and $960.0 million per year.

National Resource Gap for Managing State Water Quality Programs

$735 to $960 Million per Year

3.0   Methods and Data Collection

3.1   Resource Needs Data Collection

To date, 25 States have submitted needs data for their water quality management program using the *Resource Needs Model* (further described in paragraph 3.2 below). This number includes some States that did not complete all 14 modules.[4]

Other States have indicated their intention to submit needs data in the near future. While only one-half of States have submitted data, these States do provide a representative cross-section of State water quality programs. Participating States include large, medium, and small States, representing a great deal of geographic diversity and a wide spectrum of water quality issues.

(The map in Figure 4 below illustrates State participation in this aspect of the Resource Analysis effort.)

Each submission was reviewed to identify estimates that were unexpectedly high or low, and was scanned for other common errors. If a State's entries deviated significantly from what would be expected, the reviewer contacted the State to discuss the submission. In some cases, these discussions resulted in revisions to the State's data. In other cases, program staff confirmed that the information submitted accurately reflected the needs for their State's program.

Although the model is designed to allow States to estimate program needs for up to 5 years into the future, only current State needs were compiled as part of this analysis. However, participating States did provide their schedules for future permitting and TMDL development, as well as cost per FTE adjustments for inflation and staff retention.

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[4] EPA continues to follow-up with these States to obtain complete data. Also, one State (Virginia) submitted data but the deadline for submission had already passed so information was not included in this report. This data will be reflected in the next scheduled national report.

Figure 4.

States Submitting Resource Needs Model Data

■ (orange)	States that have provided complete needs model data.
■ (yellow)	States that have not yet provided needs model data.
■ (blue)	States that have submitted partial needs model data.
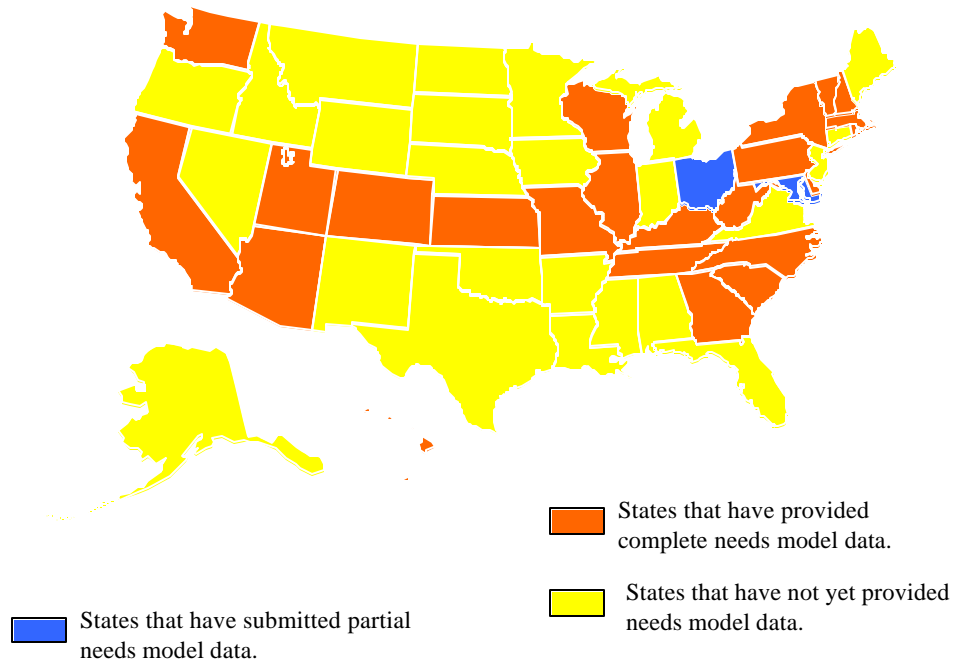
3.2   The State Water Quality Management Resource Needs Model

As noted in paragraph 1.1 above, the Resource Needs model was developed as a tool to provide a common framework for collecting data from States.   ASIWPCA held a number of training sessions to improve States' understanding of the *Resource Needs Model* and to help ensure that all personnel entering resource needs data would approach the model with the same assumptions. These training sessions were led by staff from ASIWPCA and by State personnel who had been closely involved in the model's development. The training explained the assumptions built into the model for each of the water quality program areas (i.e., all 14 of the modules), how to use the model, and the larger goals of the Gap Analysis effort. Special attention was focused on ways to avoid double-counting when estimating needs and limiting needs estimates to those activities this analysis was intended to cover (see Appendix 1). In addition to these training presentations, each on-site trainee was given a comprehensive User's Manual (including line-by-line instructions for the model) and a Frequently Asked Questions (FAQ) document to assist them in using the model.

Training sessions were held in Dallas, TX and Washington, DC in late October and early November 2000. To allow all interested parties to participate in training on the model, ASIWPCA and EPA also conducted seven training sessions through Internet web-casts. In many cases, attendees of the classroom sessions used the Internet sessions as an opportunity to educate other staff in their offices about the Gap Analysis effort and to solicit assistance in filling out the
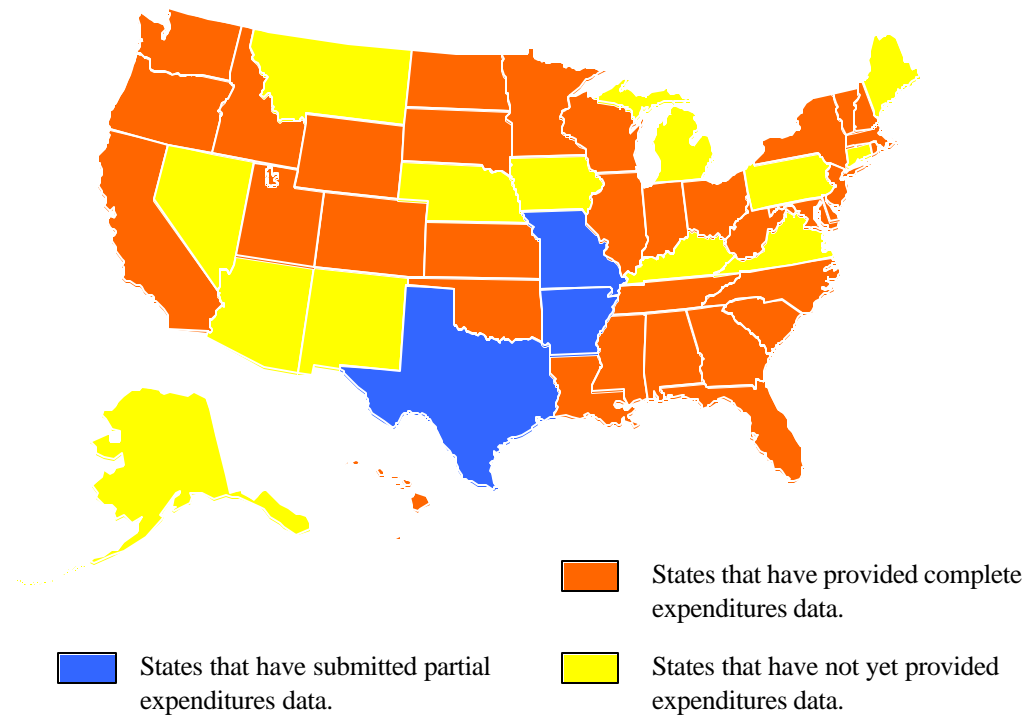
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model for submission. More than 120 individuals from 38 States participated in a classroom training session, web-cast, or both. At each session, States were encouraged to adjust the default values built into the model to reflect the needs facing their own programs and to submit these results to ASIWPCA. Training materials and the model were made available on ASIWPCA's web site (www.asiwpca.org).

3.3   Current Expenditures Survey

To complete the survey of current expenditures, State budget or financial staff and water quality program managers worked closely to estimate the allotment of CWA funding based on staff time reporting and expenditure schedules contained in State budget documents. These estimates were used to calculate the proportion of total State expenditures that are allocated to Clean Water Act activities for particular program areas. The expenditure survey also asked States to identify the sources of funding for water quality management expenditures. To date, 37 States have responded to the expenditure survey (see map Figure 5). As with the needs effort, each submission was reviewed to ensure that survey responses were appropriate. Any adjustments were made after confirmation with State staff.

Figure 5.

State Current Expenditures Data Submissions

☐ (orange) States that have provided complete expenditures data.

☐ (blue) States that have submitted partial expenditures data.

☐ (yellow) States that have not yet provided expenditures data.

4.0   Methodologies Used to Derive the National Estimates

4.1   Resource Needs

The model default values, developed activity-by-activity and primarily by State and EPA personnel, represent the best available estimates of need for the hypothetical 'typical' State program. The wide range of demographic characteristics, geographic locations, water resources, and water quality issues represented by non-reporting States make it reasonable to assume that they could collectively be considered 'typical.' Similarly, it is reasonable to assume that the States that have submitted needs data also represent an "average" State. Therefore, two different methodologies were used to establish the range for the estimate of national resource needs from the data submitted by States:

> (1) Multiplying the average needs estimate provided by participating States by the number of States that did not submit data, and then adding this value to the sum of the needs estimates provided by participating States.

> (2) Multiplying the default values by the number of States that did not submit data, and then adding this value to the sum of the needs estimates provided by participating States.

In either case, the derivation is essentially as follows:

> National need = (Need for 'typical' State * Number of States that haven't submitted data) + Sum of needs reported by all participating States

The following sections describe the step-by-step calculation of the national needs estimate.

4.1.1   Method 1 – Estimate for Non-Participants Based on State-Reported Data

First, the average need of States submitting resource needs data was determined. As a significant outlier, one very large State was not included in this calculation. At this time, the data provided by two other States is not sufficient to estimate the total water quality program management need for these States; thus, they were also excluded from the calculation of the average State need. Another two States completed more than two-thirds of the modules and were therefore included in the calculation of average State need. The values used for the total need for these States were determined by adding the default values for the incomplete modules to the total need for the modules that these States had completed.

The 21-State average was then multiplied by 28 to account for those States that did not submit data (as well as for the two States that did not submit sufficient data). This total was added to the total for the 22 States with complete or nearly complete data (including the very large State). The resulting figure has been adopted as one end-point for the range in the estimate developed for nationwide resource needs for State water quality management programs.

4.1.2 Method 2 – Estimate for Non-Participants Based on Consensus Model Defaults

The total State need predicted by the model's default values (developed by State focus session participants) was multiplied by 28 to obtain an alternate estimate for the total needs of states that did not submit data (as well as for the two States that did not submit sufficient data). This total was added to the total for the 22 States with complete or nearly complete data. The resulting figure has been adopted as the other end of the range in the estimate of nationwide resource needs for State water quality management programs.

4.2 Current Expenditures

A regression model was used to extrapolate a national estimate of current State expenditures from the data provided by the 37 survey participants. The model uses *total* State expenditures to predict *water quality* expenditures for those States that did not participate in the survey. Total State expenditures roughly represent a State's tax base and population, which are both likely to play a role in how much a State spends on water quality management programs. Furthermore, the data received from survey respondents shows a correlation between total State expenditures and water quality expenditures. For these reasons, participants in the Gap Analysis effort believed that using a regression model based on the relationship between these two variables would be an appropriate method of extrapolation. The national estimate resulting from this methodology was close to the results from several other methodologies that were considered (e.g., a regression model based on population and median household income), further supporting the credibility of the estimate. The chosen methodology was approved during a conference call with a representative from the National Association of State Budget Officers (NASBO) and State representatives that had been closely involved in the Gap Analysis effort. The methodology is explained in more detail below.

First, the reporting States' water quality management expenditures are compared with their total State expenditures. Total State expenditure data are drawn from NASBO's *1999 State Expenditure Report, June 2000*. A computer-assisted regression analysis allows the relationship between these two variables to be expressed as an equation. Since the total expenditures of the 13 non-reporting States are known, this data can be entered into the equation to estimate the non-reporting States' water quality expenditures. The resulting estimates of State water quality expenditures are totaled and added to the expenditures reported by the 37 participating States to develop an estimate of national expenditures on water quality management programs. The upper and lower bounds of this estimate represent the 95 percent confidence interval for total national expenditures. In other words, based on our sample data, statistically there is a 95 percent chance that the 'true' or 'real' total national expenditures on water quality management programs is within the identified range.

5.0   Conclusions

The message that can be most clearly drawn from the Resource Analysis is that there is nationally a huge gap in resources needed by states for managing water quality programs. At the highest level of aggregation, this resource gap indicates that states are receiving *less than one-half* of the resources that they need to fully implement the requirements of the federal Clean Water Act. That states do not receive nearly enough resources to implement water quality programs is not news to state program managers; however, the magnitude of the current resource need gap (about $800 million) is significantly larger than previously estimated in other national reports.

Further, of the resources states do receive for implementing federally required programs, only about one-third or less comes from federal sources. States have come up with a variety of approaches for funding water quality programs: annual state general fund appropriations; special restricted or dedicated funds; imposition and collection of fees; bond sale proceeds; and tax assessments, among other sources.   Recent increases in federal funding (namely through Section 106 and 319 programs) have helped to bring federal contributions slightly closer to that of states; however, there is still a long way to go to achieve at least parity.

The Resource Analysis provides a very credible estimate of total *national* expenditures and needs at a high level of aggregation. Due to differences in the methods used to collect data in this initial cycle, it will take some additional data collection and analysis to measure resource gaps at the program level. However, based on the data collected and interpolated, we can determine which program areas demonstrate the greatest resource need (see chart above). Permitting (including compliance and enforcement) still ranks very high, followed by Monitoring, Non-Point Source (NPS) Management, and Total Maximum Daily Loads (TMDL) Development. Data Management, a critical component of all water quality programs, also ranks in the top five.

States are in a delicate balancing game, wherein existing and established programs must be funded and implemented, while new program directions and areas of emphasis are looming overhead. All of these programs are required, not optional. Many states report that existing and core programs are underfunded, yet new program demands lead to further erosion of finite resources for core programs.   Part of the Resource Analysis included polling states to find out what they were doing to create efficiencies and otherwise streamline management of water quality programs. A summary of these optional operating practices is included as Appendix D of this report.

While all states endeavor to fulfill their obligations to fully undertake all the requirements of the federal Clean Water Act, each state has its own unique approach to administering water quality programs depending on the water quality issues facing their state, and the competing demands of their constituencies.

6.0   Recommendations

Based on the results and conclusions drawn from this first cycle of the management resource analysis, these are the recommendations from the State Water Quality Management Resource Task Force:

Minimize the Gap: The Resource Analysis has already helped to increase funding for water quality programs. The recent increases in Section 106 can be considered a down-payment on the resource gap. We recommend that a good goal for funding should be to achieve parity between federal and State contributions to water quality programs, and that future federal funding should be indexed or otherwise structured so that parity can be achieved within 10 years.

Maximize Flexibility: Federal funding should also take into consideration the variability between states in terms of how each State manages and administers water quality programs, and thus maximum flexibility should be allowed states in terms of application and uses of federal contributions. Federal program managers should also recognize that states also need flexibility to meet State priorities, and to accommodate a balance between core programs and new or expanding program directions.

Resource Analysis, a process not a product: A lot of work has gone into the Water Quality Management Resource Analysis by many State and EPA program managers and technical staff. It has already proven to be invaluable as a means to support requests for funding increases. A key component of the Resource Analysis is the workload model that was developed to help states assess resource needs. States that participated in this initial round found that the model helped provide a common framework for assessing program resource needs. States that were unable to participate in this cycle have come to recognize the value of this process, and have indicated their willingness to participate in the next round of data collection. We recommend that the Resource Analysis be updated in 2003-4, and become a continuing process with updates every two years, if possible tied to other federal reporting.

A Model for States: While the model was primarily developed for use in gathering information for national estimates, it has proven to be an excellent tool for states to use for their own purposes. We strongly encourage states use the workload model as their own *State* tool for estimating program needs, determining fiscal impacts of implementing new elements or expanding existing programs, and as an optional tool for program design. States are also invited to share information about their programs and use the information generated from the Resource Analysis model to make program-level comparisons with other states.

7.0   Other Issues and Considerations:

Applications: The Resource Analysis project was undertaken to provide national estimates of expenditure and resource need at a high level of aggregation.   The model could also be used to estimate resource gaps on a program level; however, additional refinements and data collection would be needed to provide program specific analyses (i.e. for TMDLs or Monitoring). States that have used the resource needs model (either for reporting on the national need, or for other state specific purposes) have found it to be a very useful tool.

Maintenance of the Model: The model is not complex (built in Excel format, it primarily uses FTE projections in calculations), but it is very detailed and those who completed the model have benefitted from training and technical support. Some refinements need to be made, and some modules could be made simpler and more streamlined. Over time, as program requirements change, the model will need to be revised and updated.

Access to Information: Information provided through the expenditures survey and the needs model could be highly useful to States, especially if program specific information could be maintained in a database, compiled and analyzed periodically (such as every two years), and provided in summary reports (electronic and hardcopy). States would have the opportunity to compare programs, or review what other States are doing to help make determinations about resource levels (i.e. for taking delegation of programs, or costs for developing TMDLs). Information could be made available anonymously (that is, reports could be set up on a size basis rather than by individual State).   In this regard, the EPA has been working to set up a secure database accessible via the Internet, so that States enter their own data and retrieve summary reports on national or regional data.

Appendix A: *Activities Covered Under the State Water Quality Management Gap Analysis*

Permitting Module

1. Program Planning, Management, and Oversight
2. Rule and Guidance Development, Review, and Revision
3. Administration of Fee Program
4. Permit Issuance
    A. Individual permit issuance or renewal
        i. NPDES permits for major facilities
        ii. NPDES permits for minor facilities
        iii. CWA 316 reviews (thermal discharges)
    B. General permits
        i. Initial permit development
            a. CAFO general permit(s)
            b. Stormwater general permit(s)
            c. Other general permit(s)
        ii. Permit renewal
            a. CAFO general permit(s)
            b. Stormwater general permits
            c. Other general permits
        iii. Authorization for coverage under general permit
5. Permit Appeals
    A. Individual permits
        i. NPDES permits issued for major facilities
        ii. NPDES permits issued for minor facilities
    B. General permits
        i. CAFO general permit(s)
        ii. General stormwater permits
        iii. Other general permits
6. Extraordinary Permits
7. State-Specific Permitting Activities

Compliance Module

1. Review of Discharge Monitoring Reports (DMRs)
2. Routine Compliance Inspections
    A. Major facilities with individual NPDES permits
        i. Reconnaissance inspection
        ii. Comprehensive inspection
    B. Minor facilities with individual NPDES permits
        i. Reconnaissance inspection
        ii. Comprehensive inspection
    C. Performance compliance inspections (PCIs)
        i. POTWs that run their own PT program
        ii. CIUs and SIUs regulated directly by State for PT
        iii. PT performance audit
    D. CSO/SSO Inspections
    E. General permitee inspections
        i. CAFOs
        ii. Stormwater
        iii. Other general permitees

3. Performance Audit Inspections (PAIs)
4. Diagnostic Inspections
5. State-Specific Inspections and Compliance Activities

Enforcement Module

1. Complaint Investigation
   A. Individual permitees
      i. Major facilities with individual NPDES permits
      ii. Minor facilities with individual NPDES permits
      iii. CIUs and SIUs regulated directly by State for PT
   B. General permitees
      i. CAFOs regulated by general permit
      ii. Stormwater dischargers regulated by general permit
      iii. Other facilities regulated by general permit
   C. Non-permitted facilities
   D. Emergency response actions
2. Violation Response
   A. Initial response
      i. Individual permitees
      ii. General permitees
   B. Follow-up response (e.g., conference)
      i. Individual permitees
      ii. General permitees
   C. Administrative orders (AO; w/the possibility of a penalty)
      i. Individual permitees
      ii. General permitees
   D. Civil/criminal referral
      i. Individual permitees
      ii. General permitees
   E. Post-referral follow-up
      i. Individual permitees
      ii. General permitees
3. State-Specific Enforcement Activities

Septage Module

1. Program Planning, Management, and Oversight
2. Rule and Guidance Development, Review, and Revision
3. Regulation of Septage Haulers
   A. Review of annual hauler reports
   B. Audits of licensed haulers
   C. Hauler certification
4. Review of New and Replacement Application Sites
   A. On-site inspections
   B. In-office application review
5. Compliance inspections
6. Formal Enforcement
7. Education and Public Outreach
8. State-Specific Septage Activities

Nonpoint Source and Coastal Nonpoint Source Management Module

1. Planning and Coordination for NPS Program

a. NPS program development and evaluation
b. Coastal NPS program development and evaluation
c. Intra-agency coordination
d. Interagency coordination
2. Assessments
3. Ongoing Rule and Guidance Development (includes review and revision)
4. NPS Project Management (NOTE: Do NOT include wetlands projects)
a. CWAP activities
b. Watershed project planning and evaluation
c. Clean lake project management
d. Technical assistance (e.g., assistance w/developing funding requests)
e. Project-specific intra-agency and interagency coordination
f. Field inspections
5. Formal enforcement (e.g., civil/criminal referral)
a. Initial response (e.g., notice of violation)
b. Follow-up response (e.g., conference)
c. Administrative order
d. Civil/criminal referral
e. Post-referral follow-up
6. Locally-Based Program/Project Coordination
7. Public outreach
a. Program-oriented public outreach -- information re: overall State program
b. Project-oriented public outreach -- includes targeted public education
8. Data Management— *in Data Management module*
9. Contract/Grant Coordination, Tracking, and Management
10. State-Specific NPS Activities
-Add on for States with CZARA activities folded into their CWA programs

TMDLs Development Module

1. Planning and Budgeting
2. Watershed Characterization/Data Compilation
3. Analysis
4. Allocation and Implementation Analysis
5. Tracking Progress
6. Public Participation
a. Required formal public outreach
b. "Optional" additional public outreach
7. Legal Support and Litigation
8. Extraordinary TMDLs
9. Procurement and Contract Management
a. All contracted expenditures
b. Contractor/3rd party coordination and management
10. One-Time Activities (e.g., guidance development)
11. State-Specific TMDL Activities

Wetlands Module

1. Planning and Coordination for Wetlands Program
A. Program development and evaluation
B. Development of wetland assessment and management techniques
C. Intra-agency coordination
D. Interagency coordination
2. Watershed Project Planning and Review
3. Water Quality Standards Development for Wetlands
4. Wetlands Monitoring— *in Monitoring module*

5. Wetlands Mapping— *in Data Management module*
6. Permitting
   A. State has assumed CWA 404 program
     i. Permit issuance (includes wetlands/non-wetlands 404 permitting)
       a. General State permits
         - Initial permit development
         - Authorization for coverage under general permit
       b. Expedited individual State permits
       c. Standard individual State permits
   B. State programmatic general permit (SPGP) program
     i. Initial development and annual review of SPGP
     ii. Simple
     iii. Typical
     iv. Complex
     iv. Extraordinarily complex
   C. CWA Sect. 401 water quality certification
     i. Initial development and annual review of SPGP
     ii. Simple
     iii. Typical
     iv. Complex
     iv. Extraordinarily complex
  D. Compensatory mitigation program
7. Surveillance and Enforcement of Permit Compliance
   A. Surveillance and compliance inspections
   B. Initial response (e.g., notice of violation)
   C. Follow-up response (e.g., conference)
   D. Administrative order
   E. Civil/criminal referral
   F. Post-referral follow-up
8. Administrative and legal appeals (litigation support)
9. Data Management— *in Data Management module*
10. Listing for CWA 303(d) and Reporting for CWA 305(b) Report
11. Public education and outreach (add-on)
12. Certification and Training Programs (e.g., delineator certification)
13. State-Specific Wetlands Activities
      -Wetlands Restoration Activities (non-regulatory)

Coastal and Marine Module

1. Rule & Guidance Development, Review, and Revision
2. Coastal Monitoring Program Management
  A. Develop and Implement Coastal Monitoring and Research Strategy
  B. National Coastal Monitoring Act (if implemented by EPA and NOAA)
   i. Ensure consistency of coastal discharge compliance monitoring with NCMA
   ii. Develop and ensure compliance with multi-year intensive monitoring programs for designated areas
   iii. Integration of existing coastal monitoring and intensive monitoring programs
   iv. Consultation with federal agencies
  C. Development of Monitoring Plan for *Pfiesteria* and algal blooms
   i. Develop/maintain *Pfiesteria* standardized monitoring protocols
   ii. Additional algal bloom monitoring programs (e.g., red tide)
 D. Beach Water Quality
   i. Technical assistance to local monitoring organizations
   ii. Beach survey response (if applicable)
3. Establishment of No Discharge Zones

A. Review of NDZ proposals and reporting of State-approved NDZs
   B. NDZ Enforcement
4. Invasive Species
   A. Consultation and collaboration with the advisory committee to the Invasive Species Council
5. National Estuary Program
   A. Contract/Grant Coordination, Planning, Tracking, and Management
   B. CCMP development and tracking implementation progress
6. Public Outreach (percentage add-on)
7. State-Specific Coastal & Marine Activities

Monitoring Module

1. Planning and Coordination for WQ Monitoring
    A. Annual plan
    B. Plan for special studies
    C. Development of biological assessment methods (wetlands, lakes, etc.)
    D. Development NPS assessment methods
2. Ensuring Data Quality
    A. Develop and revise DQOs
    B. Develop and revise SOPs, QMP, and QAPPs
    C. Implement QA/QC plans -- include field audits
3. Field Collection of Data
    A. Routine sample collection (w/in-house staff)
       i. Ambient water quality
          - Routine chemistry (pH, DO, turbidity, nutrients, E. coli, etc.)
          - Intensive chemistry (metals, priority pollutants, etc.)
          - Toxicity (acute and chronic toxicity on aquatic communities)
       ii. Sediment
          - Chemical (collection of resident sediments)
          - Toxics (acute and chronic toxicity of sed. on aq. communities)
          - Oxygen demand
       iii. Biological
          - Aquatic community (macroinvertebrates, fish, periphytons, etc.)
          - Tissue (contaminant concentrations in fish and shellfish)
       iv. Habitat
          - Qualitative characterization (habitat impact on water quality)
          - Quantitative char. (interaction btwn. habitat and aq. communities)
    B. Special studies (w/in-house staff)
4. Sample Analysis
    A. Routine sample analysis (w/in-house staff)
       i. Ambient water quality
       ii. Sediment
       iii. Biological
       iv. Habitat
    B. Analyses for special studies (w/in-house staff)
    C. Lab certification
5. State Support for National Air Deposition Network (NADN)
6. Data Management— *in Data Management module*
7. External Support -- includes contractors, watershed groups, etc.
    A. All expenditures for contractor and volunteer support for monitoring
    B. Contractor/3rd party coordination and management
8. State-Specific Monitoring Activities

Reporting Module

1. Review Regulations and Guidance for CWA 305(b) and CWA 303(d)
2. Plan and Coordinate Data Acquisition and Compile and Screen Data for Assessments
3. Development and Submission of Complete 305(b) Report and Response to EPA Comments
4. Develop, Review, and Update 303(d) Listing and De-Listing Methodology
5. Prepare 303(d) List
6. Public Participation
   A. Required public outreach for 303(d) list
   B. "Optional" additional public outreach for 303(d) list and 305(b) document (add-on -- adjust below)
7. Submission of 303(d) List to EPA and Response to EPA Comments
8. Prepare Annual Electronic Updates
9. Reporting for 319— annual report and program assessment
10. Continuing Planing Process (CPP)/Water Quality Management Plans (WQMPs)
    A. Review and update of Regional, State, and/or basin WQMPs
    B. Certification of Consistency of WQMP Updates
    C. Maintain and Update Continuing Planning Process
    D. Maintain and Update Implementation Procedures
11. State-Specific Reporting Activities

Standards Module

1. Develop Standards
2. Standards Implementation
3. Use-Attainability Analysis
4. State-Specific Standards Activities

CWSRF and Grants Module

1. CWSRF and Construction Grants
   A. Rule and guidance development, review, and revision
   B. Project development and technical assistance, project solicitation, and project evaluation (includes PPL and IUP)
   C. Application, annual audit, annual report
   D. Project Management Activities
    i. Environmental rev., plan and spec. rev. and approvals, facilities plan rev., contract procurement and oversight
    ii. Project monitoring
     (1) Payment reviews and loan close-outs
     (2) Construction inspections and change orders
   E. Loan Management
    i. Loan documenting
    ii. Loan fund accounting
   F. Bond fund management (if applicable)
    i. Bond issuance documents
    ii. Bond sale oversight
   G. Construction grants close-out
   H. State support for the Clean Water Needs Survey
   I. Hardship grant program for rural communities
2. Program Grants and Cooperative Agreements
   A. Section 604(b) Grant
    i. Grant Coordination, Tracking, and Management
    ii. Contract Coordination, Tracking, and Management
   B. Section 106 Cooperative Agreement
    i. Grant Coordination, Tracking, and Management
    ii. Contract Coordination, Tracking, and Management

3. Project Grants
  A. Section 104(b)(3) Grants
    i. Grant Coordination, Tracking, and Management
    ii. Contract Coordination, Tracking, and Management
4. Performance Partnership Grant (PPG)
  A. Development of Performance Partnership Agreement
  B. Performance Partnership Grant coordination, tracking, and management
5. Public Outreach (percentage add-on)
6. State Specific Grant Management Activities

Data Management Module

1. General Data Management Activities
  A. Data Processing
    i. PCS (or State equivalent)
    ii. STORET (or State equivalent)
     (1) sample event processing
     (2) special study processing
    iii. Other water quality related systems
  B. System Maintenance and Administration
    i. User support
    ii. Hardware and software purchases
2. Data System Improvement and Integration
  A. Hardware Purchases
  B. Software Purchases
  C. Develop data system objectives and improvement strategies
  D. Develop RFPs and review contractor bids
  E. Implement system update
3. Geographic Information Systems
  A. Development
  B. Maintenance and Improvement
  C. Data Retrieval
4. Web site design, development, and maintenance
5. One-Stop Reporting Program
  A. Development of 120-day plan
  B. Grant Coordination, Tracking, and Management
6. State Specific Data Management Activities

Regional Initiatives Module

(Includes Gulf of Mexico / Mississippi River; Great Lakes; Chesapeake Bay; U.S. - Mexico Border
and Other Regional Programs.)

Appendix B: *Participants in the Development of the State Water Quality Management Resource Needs Model*

States in Attendance at Focus Group Meetings (18)	
Alaska	Michigan
Colorado	New Jersey
Connecticut	New York
Delaware	North Carolina
Georgia	Oklahoma
Illinois	Oregon
Maine	Texas
Maryland	Virginia
Massachusetts	Wisconsin

Other States That Submitted Comments (14)	
Alabama	Montana
Arizona	New Hampshire
California	Pennsylvania
Florida	Rhode Island
Hawaii	Utah
Louisiana	Vermont
Missouri	Wyoming

Non-Governmental Organizations in Attendance at Focus Group Meetings
American Clean Water Federation
Association of State and Interstate Water Pollution Control Administrators (ASIWPCA)
Association of State Wetland Managers
Coastal States Organization
Environmental Council of States (ECOS)
New England Interstate Water Pollution Control Commission (NEIWPCC)
Water Environment Federation (WEF)
Wisconsin Association of Lakes

Appendix C: *Survey Respondents*

States Submitting Resource Needs Data (24)	
Arizona	New Hampshire
California	New York
Colorado	North Carolina
Delaware	Ohio
Georgia	Pennsylvania
Hawaii	Rhode Island
Illinois	South Carolina
Kansas	Tennessee
Kentucky	Utah
Maryland	Vermont
Massachusetts	West Virginia
Missouri	Wisconsin

States Submitting Current Expenditures Data (37)		
Alabama	Maryland	Rhode Island
Arkansas	Massachusetts	South Carolina
California	Minnesota	South Dakota
Colorado	Mississippi	Tennessee
Delaware	Missouri	Texas*
Florida	New Hampshire	Utah
Georgia	New Jersey	Vermont
Hawaii	New York	Washington
Idaho	North Carolina	West Virginia
Illinois	North Dakota	Wisconsin
Indiana	Ohio	Wyoming
Kansas	Oklahoma	
Louisiana	Oregon	

Appendix D: *Summary of Optional Operating Practices for State Water Quality Management Programs*

During the Resource Analysis process, States shared techniques and strategies that they had found effective in reducing the workload associated with required program management activities and in providing additional protection for public health and the environment. This attachment provides a description of these potential efficiencies. It is important to note, however, that these are suggestions and options that states might apply and are not considered required practices. Additionally, this is not an exhaustive listing of all potential efficiencies that may be achieved, and that individual States face unique circumstances and challenges that may preclude the adoption of one or more of the efficiencies described below.

Watershed Approach – *Batching*

Water bodies and water quality issues can frequently be separated into distinct categories that share important characteristics. States identified various methods of grouping as a means to reduce overall resource needs by up to 25 percent. For example, the watershed approach to water quality management involves looking at each watershed as an integrated system, rather than a series of individual streams, lakes, or wetlands. This approach provides States with several opportunities to realize efficiencies in both program management and implementation.

Example 1: The watershed approach may enable States to group, or 'batch' TMDLs in the same watershed, reducing program redundancy. Much of the background information developed to complete a TMDL for one contaminant (e.g., nutrients) in a particular stream could also be used to develop a TMDL for another contaminant in the same stream (e.g., cadmium). Further, the use of a watershed approach encourages local groups to get involved in the effort to protect water quality since these groups can see the results of their efforts in their neighborhood. In addition, this type of management strategy provides States with additional flexibility in regulating pollutant sources. Grouping also provides States with the opportunity to hold one public meeting for all grouped TMDLs, standards, etc., rather than holding separate (redundant) public hearings.

Example 2: Several States now issue permits on a watershed basis, or are moving toward watershed-based permitting. North Carolina has adopted a five-year, rotating basin approach. Under this program, all regulated facilities within a particular watershed are grouped together. Staff involved with a particular aspect of the NPDES program (e.g., permit writing, compliance assistance, enforcement, etc.) concentrate on a single watershed at a time. For example, while standards personnel concentrate on developing criteria and reviewing designated uses in Watershed C, permit writers are developing limits based on established criteria in Watershed B and enforcement officers are monitoring the compliance of permitted facilities in Watershed A. Over the course of the five-year cycle, each watershed in the State is covered. As a result of this approach, North Carolina has smoothed the workload for the permitting cycle and has realized several additional benefits.

When permits are issued on a watershed basis, facilities with similar water quality issues—and in close proximity—are addressed simultaneously. A single public hearing can be used to address multiple permits, saving administrative resources. In addition, permits are developed in their environmental context, water quality-based limits for these permits share similar bases and reflect the same monitoring data, meaning that they can be developed more efficiently.

Example 3: Several States now integrate their NPS strategies with their watershed plans, or are moving towards watershed based planning for NPS control. Indeed, under the nine key elements of the NPS program, project evaluation requires the identification and prioritization of waters and watersheds impaired or threatened by NPS pollution (including those located on Federal property).

The use of a watershed approach also serves to more closely integrate the efforts of the PS, NPS, coastal, lake, and wetland programs, resulting in improved protection of public health and the environment. In addition, this type of management strategy provides States with additional flexibility in the regulation of various pollutant streams. Some States recommended that the federal government mandate the inclusion/integration of wetlands programs within the watershed approach.

In addition, much as discussed under Example 2, above, sites with similar NPS water quality issues that are located in close proximity may be addressed simultaneously through a watershed-based management strategy. For example, the State may develop a single management plan and recommend similar best-management-practices (BMPs) for all sites within the same environmental context based on the same monitoring data.

Communication

1. Intra-agency and Interagency Communication

A. Non-Point Source Management.

The NPS program has been increasing in visibility and importance over the past decade, especially in the last three years. Similarly, wetland programs have begun to receive more attention from EPA and State agencies, as well as from the public. State representatives participating in the Phase II process unanimously identified the importance of communicating with stakeholders throughout the planning process and maintaining this communication during program implementation.

Specifically, States identified the importance of intra-agency as well as interagency communication to prevent the duplication of effort and to ensure that different divisions or agencies are not working at cross-purposes. States that have involved other agencies (e.g., Fish and Wildlife, Natural Resources, Agriculture, Forestry, Transportation, etc.) in their planning process have found that they can benefit from the experience of these other agencies in project selection, technical exchange, etc. and can improve program consistency. Interagency

coordination also permits agencies to develop a single resource protection plan with greater scope by covering more of the factors and activities that impact water quality (e.g., recreation, mining, agriculture, silvaculture, sprawl, etc.).

For example, Wisconsin's Department of Natural Resources has entered into a partnership with the Department of Agriculture, the counties association, the University of Wisconsin, and the National Resources Conservation Service to form a state-wide Standards Oversight Council. Among other accomplishments, this council has developed technical specifications for best management practices (BMPs) that will be used and communicated by all agencies. The success of the Council has been based on the fact that it is a technical rather than political body, freeing it to make unbiased decisions based on the best available information.

B. Point Source Control Activities.

Massachusetts has instituted the use of a "team" approach for permit development. Each team is composed of one State and one EPA staff member. These individuals meet on a regular basis to discuss the permits to which they are assigned. This approach accelerates the permitting process through the regular professional exchange of ideas about policy and permitting issues. In addition, each team member provides motivation and support for the other, fostering high morale and effective communication.

2. Community Participation

A. Water Quality Monitoring Councils.

National, State, and local water quality monitoring councils may enhance the ability of the lead water quality agency to develop and implement its monitoring strategy. These councils are composed of stakeholders, including government agencies, environmental groups, industry representatives, private citizens, local officials, watershed advisory groups, etc. The recommendations made by these councils ensure that the prioritization of monitoring efforts is based on input from the members of the affected communities. In addition, these councils provide State water quality agencies with a forum by means of which they can disseminate information about the accomplishments and future goals of their programs.

B. Local Contractors.

Encouraging the involvement of local contractors in TMDL development may prove advantageous since these contractors are likely to have a greater understanding of the major factors impacting water quality in their watershed and the interplay between key individuals and organizations than out-of-State contractors. In addition, the use of local contractors can help States abide by FTE caps and will limit the travel costs.

C. Using Volunteers.

Non-governmental organizations such as environmental groups, community associations, watershed advisory groups, lake associations, and stream associations are important and often

underutilized resources. For example, Massachusetts involves the local community in its multi-media watershed approach. Similarly, New York and Wisconsin both rely on data collected by volunteers from the State Lake Association to monitor many of their lakes, particularly those that are more remote, freeing agency staff to concentrate on other areas. Each of these States confirmed that community groups can collect and provide high quality data to the State program (particularly for their local water body). However, they also noted that volunteer efforts require supervision and that volunteers must be trained to ensure consistent sampling technique. Further, volunteers may not be equipped to perform certain types of monitoring (e.g., mid-lake sediment sampling) due to lack of training or appropriate equipment.

3. Management Practices

A. Results-Based Management.

Several States emphasized the benefit of targeting NPS, coastal NPS, and wetlands grants/projects to the achievement of specific environmental results. The additional planning necessary to develop well targeted programs enhances public understanding (e.g., the reduction of beach closures by 50%) and support of individual water quality projects and also provides a means to measure progress towards State and federal water quality goals. States reported that increased public understanding resulted in lower outreach expenses and in less complicated public hearings.

B. Generic Best-Management-Practices.

Several States recommended the development of 'generic' BMPs. While the final determination of a BMP must be based on site-specific factors, a checklist of the questions that must be asked and answered during BMP development would prove helpful to field agents. In addition, the development of such a checklist would provide an excellent opportunity and forum for different agencies with jurisdiction over NPS issues to share their experiences. For example, extension service agents employed by the State department of agriculture would be kept appraised of the most recent technological breakthroughs from US EPA's research labs.

C. Economies of Scale.

Substantial costs are associated with obtaining the aerial photographs necessary for wetlands delineation, mapping, and inventory activities. However, since prices depend on the number of passes that must be made to photograph a particular area, the use of longer, straight-line flights covering larger portions of the State will reduce the per-photo cost. In addition, members of the focus group identified several other agencies with whom costs for these photographs may be shared (e.g., Transportation, Forestry, etc.).

Experience, Training, and Technical Assistance

      1. Experience and Training

Numerous members of the focus group voiced their belief that the time necessary to complete TMDLs would decrease over time as State's became more familiar with the process and perfected their approach based on input from stakeholders. For example, a State that has previously completed several TMDLs for mercury in one lake would be able to develop another with less marginal effort.

The improvement of State NPS programs was cited as another way in which the workload associated with TMDL development could be reduced in the future. As State NPS programs develop and successful implementation is documented, TMDLs will need to be developed for fewer bodies of water (fewer rivers, lakes, etc. will be impaired due to NPS pollution), and States will have more information regarding the extent, nature, and control of NPS pollutants.

In addition, States will be able to categorize and 'batch' (see watershed approach, above) TMDLs more effectively once they have had more experience. States will have a better concept of the type of data/modeling necessary to support a particular type of TMDL and can use previous TMDLs as templates and checklists for current TMDL efforts. For example, a State may be able to cover all lakes that do not meet their designated uses due to mercury contamination with very similar TMDLs, saving substantial staff time and effort.

To enhance knowledge transfer, some States recommended that EPA make copies of approved TMDLs available to all States so that they may be used as templates to support future efforts.

      2. Technical Assistance

          A. CWSRF Program.

One of the States participating in the focus session suggested that CWSRF project technical assistance efforts may be improved with the establishment of a technical assistance and coordination committee at the State level designed to facilitate assistance and communication among State agencies and organizations. This committee could present regional seminars several times per year to provide assistance and information. It was also suggested that targeting the majority of technical assistance efforts during the CWSRF project development and review stages can result in a more efficient CWSRF program and swifter overall loan processing.

          B. Wetland Program.

The development of a training and certification/licensing program for wetland delineation could provide interested members of the community with the training necessary to make consistent determinations of wetland boundaries. These data could then be incorporated by the State into their inventory, reducing staff workload in this area.

Technology Improvements

    <u>1. Automation</u>

        A. Public Access.

A significant efficiency recognized by the focus group was improving public access to information over the Internet. While developing and maintaining a comprehensive Web site may be costly, the long term benefits are substantial. One major benefit is the reduction of Freedom of Information Act (FOIA) data retrieval workloads. Most States receive numerous FOIA requests per month. Instead of water quality staff tracking down popularly requested data, such information can be provided online for public review and download. Developing links from State Internet sites to EPA's recently established Clean Water Online system and other federally maintained Internet resources containing State water quality information is one simple way for States to improve public access to water quality data.

        B. Electronic Data Transfer.

The use of electronic data transfer systems by regulated entities and field staff can significantly reduce data processing workloads associated with management of discharge monitoring reports (DMRs), monitoring data, compliance and enforcement information, and other collected data. States that create a unique centralized facility identification number for each regulated facility can ease the burden of managing and tracking facility data and reduce the time necessary to respond to FOIA facility information requests. Electronic data transfer also eases the reporting burden of regulated entities by reducing the number of mailings and multiple filings, thus improving communication efficiency.

        C. Routine Tasks.

The use of data systems to automate CWSRF and grant management tasks was identified by the focus group as a management method that could result in improved efficiencies. Two specific activities that could clearly benefit from integration into a State data system are payment processing and tracking and CWSRF loan application review.

    <u>2. Standardized and Integrated Data Systems and Software</u>

Currently various departments within a State's water quality program often rely on different data systems and software and may require different technical specifications for report submission. The incompatibility of many of these systems results in decreased communication, delays in the sharing of data, and a substantial duplication of effort. Compatible data systems may be used to automatically transfer data used for multiple purposes (e.g., reporting, standards development, permitting, endangered species assessments, historic preservation, etc.) to the appropriate branch, office, and user. Automatic data transfer (see above) reduces the costs necessary for data collection, data entry, and data quality control.

In addition, EPA, USDA, and other Federal agencies use a variety of software products and rely on databases with often incompatible characteristics. EPA and States are both moving toward establishing compatible and integrated data systems in order to increase efficiencies. EPA's One-Stop Reporting program and Information Integration Initiative (I^3) are two efforts to help EPA and States realize efficiencies by supporting the integration of environmental information into central data systems, coordinating information objectives, and increasing communication and technical knowledge.

In the short-term, the standardization and integration of existing data systems requires substantial capital costs and effort. However, the current incompatibility of data systems results in decreased communication, delays in the sharing of data, and a significant duplication of effort. Compatible data systems may be used to easily transfer and download data used for multiple purposes (e.g., reporting, standards development, permitting, monitoring, compliance and enforcement, endangered species assessments, historic preservation, etc.) to the appropriate branch, office, and user.

Improved integration increases communication and information sharing among program branches and agencies, reducing the effort required to access information from other staff or agencies. Centralized integrated data systems can result in staffing efficiencies and a reduction in federal and State reporting burdens. In short, compatible and integrated data systems within State agencies and among EPA and States allows for faster, more efficient data entry, transfer, and retrieval. Integrated data systems can be especially helpful for TMDL development and watershed characterization and planning, by allowing staff to more easily combine a variety of information (e.g., ambient monitoring, facility discharges, air pollution data, RCRA information, and GIS data).

3. New Technology

A. New Technologies.

New and evolving technologies such as automated sampling and remote sensing are expected to reduce the costs of monitoring activities since fewer State personnel (and fewer vehicles) will be needed to conduct an adequate monitoring program. Note, however, that States may face relatively high initial capital costs when they purchase and install these new technologies. It is anticipated that States will become more proficient and efficient in the use of these devices over time as availability increases and technology management strategies are refined.

B. Global Positioning System.

One State identified the use of global positioning systems (GPSs) as the means by which they improved the quality and consistency of monitoring data while reducing the amount of time inspectors needed to spend in the field. GPS devices allow inspectors to precisely locate the location of sampling sites without needing to rely on geographical features or local (and often outdated/unreliable) maps. After collecting the necessary data, investigators may then immediately generate accurate reports on-site rather than needing to return to the office.

Therefore, GPSs may increase the number of sites than may be visited in a single day, reducing travel time.

C. Permit-Writing Tools.

State and EPA participants agreed that permit-writing tools can greatly increase efficiencies in permit issuance. Depending on their design and level of sophistication, these tools can provide the following benefits (among others):

- Automatically add boiler-plate permit language
- Assist in calculating permit limits
- Download permit limits into a compliance database

EPA is currently collecting information on State permit-writing tools to facilitate the sharing of technologies among States. Please contact Dave Hair at EPA's Office of Wastewater Management (OWM) either by phone at (202) 260-0712 or by email at *hair.david@epa.gov* for more information or to share information on permit-writing tools that your department has found to be useful.

Miscellaneous

1. Modification of Grant Program Requirements

Several focus group participants suggested that restructuring and increasing the flexibility of the performance partnership grant (PPG) could make it more manageable and effective. Currently, a number of States participating in the PPG process believe the program creates more work for grant administration personnel rather than a reduced workload, as originally intended.

Participants also suggested that the CWSRF program's annual requirement for development of the project priority list (PPL) and intended use plan (IUP) instead be required on a bi-annual basis. State focus group personnel believed that this reduction in reporting frequency could reduce a burden on CWSRF program staff while maintaining adequate Federal oversight and review.

2. Adaptation of Wasteload Allocations[5]

Wasteload allocations (WLAs) previously developed as part of the NPDES permitting process may help expedite or facilitate the establishment of TMDLs. If States take advantage of this opportunity, they may only have to enhance their previously completed monitoring and analysis efforts, realizing substantial savings. However, note that TMDLs must consider all point source (PS) and nonpoint source (NPS) sources and must incorporate a margin of safety or they will not be accepted. Therefore, WLAs for permitted facilities on small water bodies with one or two PS

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[5] Note that according to the CWA, WLAs for NPDES permits must be based on the TMDL for impairing substances.

dischargers may be repackaged as TMDLs more easily than WLAs developed for facilities which discharge to large water bodies with many contributors (e.g., Boston Harbor) since the State will need to make fewer adjustments to the initial WLA to meet the aforementioned TMDL requirements.

3. Dedicated Quality Assurance Group

One State noted that a dedicated quality assurance group had enhanced its program's ability to ensure data quality by centralizing data review. Thus, consistency between different data sets could be reviewed and identical standards could be applied to all data used in the development of water quality standards, TMDLs, permit limits, etc.

4. High-Quality Data

State participants universally agreed that the availability of accurate and comprehensive monitoring data results in more efficient permit development and helps to limit permit appeals based on faulty data, reducing litigation costs. It is important to develop communication strategies to tie monitoring efforts to effective program management since monitoring is often the first program area to be cut when budgets are tightened.

5. NPDES Permitting

A. Scheduling.

Watershed-based permitting lends itself to the development of a regular schedule that helps ensure more consistent and more efficient staff utilization. Note, however, that States that adopt a watershed-based permitting approach may face a short-term increase in their permit backlog as permits are rolled over into the watershed cycle.

B. Prioritization schemes for permit review.

Many States and EPA Regions currently face substantial permit backlogs, even for major permits. Representatives of New York State discussed their strategy for limiting permit backlog, while ensuring that the most critical permits are scrutinized. In New York, State Permit Discharge Elimination System (SPDES) permits are automatically subjected to an "administrative renewal" upon expiration. A prioritization system determines the order in which permits receive more intensive review. This system takes into consideration factors such as facility size, the types of pollutants discharged, and the number of years that have passed since the last intensive review. Permits for facilities that are the sole contributor to an impaired water or that are one of several contributors to impairment are assigned a higher priority. Other States indicated that they use similar—but less formal—systems to allocate relatively more resources to permits that are expected to have a greater impact on water quality.

C. General Permits.

States reported expanded use of general permits. Although the development of a general permit can be extremely effort-intensive, these permits can substantially reduce State workload once they have been implemented since State personnel will be required to develop individual permits for fewer facilities. EPA is currently developing a compendium of State general permits.

D. Simplified Limits for Small Dischargers.

Participants concluded that for certain categories of dischargers, "canned" permit limits may be appropriate (e.g., technical limits based on numeric criteria). Small differences in the permit limits for these facilities have little effect on water quality, and, in many cases, off-the-shelf treatment technology can easily meet limits. The use of such limits will permit States to focus resources on those permits that are expected to have the greatest impact on water quality.

E. PE Review in Lieu of Plan Review.

Some States require P.E. certifications for certain facility plans, limiting the need for States to expend resources on extensive plan review.

F. Other Permitting Efficiencies.

States and Regions also suggested the following additional ways to focus and reduce the burden of permitting activities:

- Simplified affordability tests for CSO discharges.
- Increased coordination with water quality criteria development.

6. NPDES Enforcement

State and Regional representatives recommended the consideration of the following strategies to reduce the cost of running an effective enforcement program:

- Self-monitoring by regulated facilities.
- Sector-based enforcement initiatives.
- Electronic data reporting.