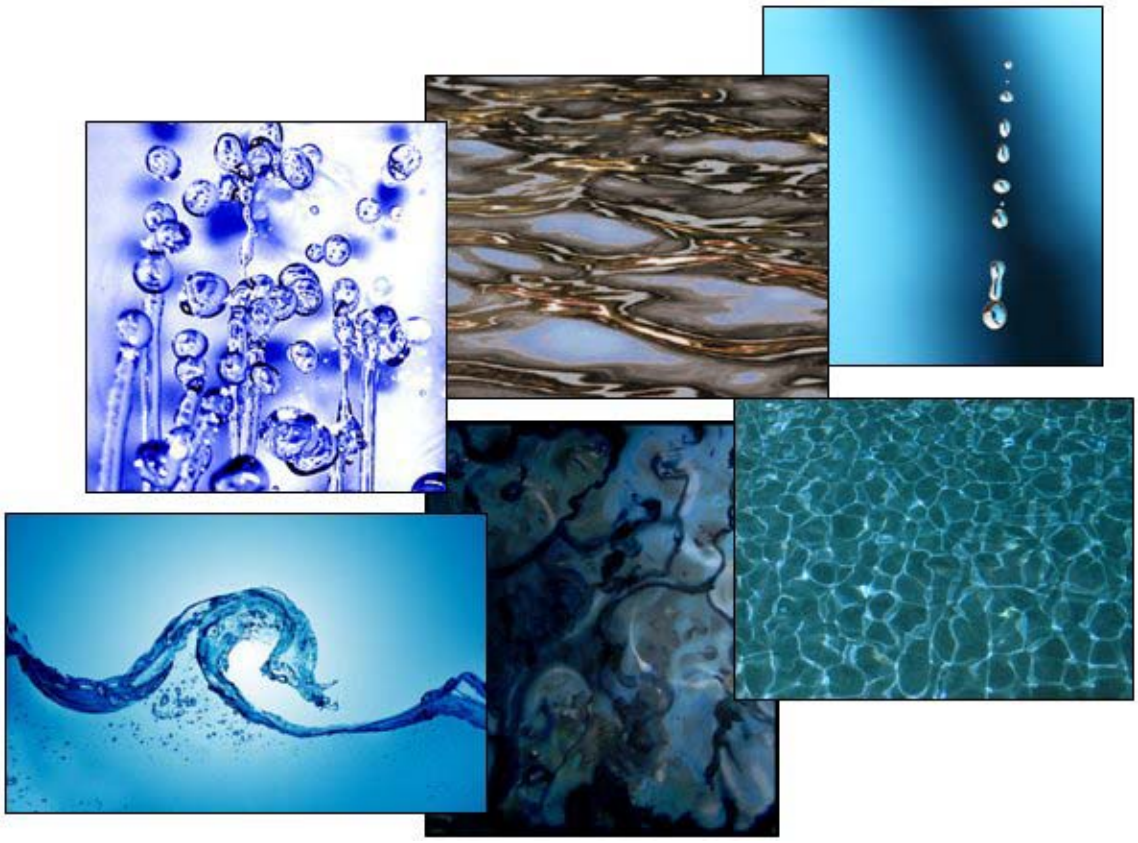
Kentucky Division of Water

Annual Report

Fiscal Year 2010



Commonwealth of Kentucky
Energy and Environment Cabinet
Department for Environmental Protection
Division of Water

ky.gov
water.ky.gov

From the Director

Dear Reader,

I am very pleased to present the Division of Water (DOW) Annual Report for State Fiscal year (SFY) 2010. SFY 2010 has been a year filled with numerous challenges for the DOW, however sometimes challenges offer opportunities to improve how we accomplish our mission. While dealing with the challenges we have managed to accomplish many goals. This report serves to present both the challenges and the accomplishments.

DOW has been working hard to resolve issues raised by the U.S. Environmental Protection Agency (EPA) regarding EPA's recently modified expectations for Clean Water Act permit requirements associated with coal mining operations. As scientific information has been assessed regarding the relationship between coal mining and water quality, permits have been revised to better address water quality concerns. This remains a dynamic issue as we continue to evaluate the effectiveness of modified mining practices. DOW has drafted permits that are intended to protect water resources through implementing current regulations and statutes, however, EPA has objected to a number of these permits. The path forward for coal mine discharge permits remains uncertain.

Kentucky has dealt with several natural disasters. From December 2009 through early February 2010, extremely cold weather impacted drinking water intakes and caused numerous water-main breaks. In early May a strong weather system resulted in widespread flooding. The division's role during emergency situations is to work with public water systems and wastewater treatment plants that are impacted. DOW worked with these systems, Kentucky Emergency Management, FEMA, NRCS, and local agencies to ensure that safe drinking water and appropriate waste treatment was available.

While addressing the many challenges it faced, DOW also experienced successes in SFY 2010. Our regulations are current relative to federal regulations, applicable case law, and technological advances. DOW took steps to resolve outstanding issues regarding Kentucky's anti-degradation implementation policy. Progress has been made in reducing permit backlogs while simultaneously improving permit quality. DOW is evolving its efforts to update National Flood Insurance Program maps in order better mitigate flood hazard risks. While these represent some of the more notable accomplishments, many others were achieved as well.

DOW has been working to improve partnerships with the Public Service Commission, U.S. Army Corps of Engineers, U.S. Geological Survey, and other agencies in order to more effectively carry out its mission. In an agreement with EPA and DOW, the Kentucky Water Resources Research Institute has agreed to serve as a Watershed "Center of Excellence." The cabinet was offered membership in the Mississippi River Gulf of Mexico Hypoxia Task Force and DOW is working with that group and its partners within Kentucky, to develop a statewide nutrient reduction strategy.

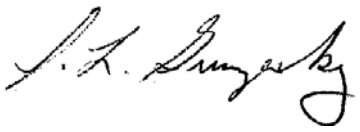
As I read this report, I am encouraged by the fact that as we worked through these challenges, we have addressed many of them successfully and have laid the groundwork for future successes. Despite severe budget

challenges, decreasing personnel resources, and increasing workloads, division personnel continue to find ways to meet the increasingly demanding challenges that we face as an agency and that the public we serve expects of us. This is a testament to the commitment we have as a division to accomplishing our mission. The successes highlighted in this Annual Report are not all encompassing, but mean to communicate the most important work we are conducting for the Commonwealth.

However, the division has significant work ahead of us! This report also demonstrates that the division has better defined the scope of the challenges that remain before us. This report illustrates how DOW has invested its energy and efforts over the course of the previous fiscal year, and how it will continue to do so towards achieving our goal of improving the quality and availability of water resources throughout the state of Kentucky in the years ahead.

Thank you for taking the time to read this report. I hope you obtain a better understanding of the various issues and challenges that affect water resources throughout Kentucky. If you would like to comment on this or future reports, please contact us at water@ky.gov and let us know what you think. If you have any questions, you may contact Peter Goodmann at peter.goodmann@ky.gov or Jo Blanset at jo.blanset@ky.gov for more information

Sincerely,



Sandra L. Gruzesky, Director
Division of Water

TABLE OF CONTENTS

Introduction

The work we do at DOW is of significant interest to, and has far-reaching personal effect on, the citizens we serve. DOW's operational plan is our guide for being responsive and responsible to the citizens of the Commonwealth. This report summarizes DOW's efforts toward implementing its second operational plan. The priorities identified in this plan consist of:

1. Protect, manage and restore water resources.
2. Reduce DOW permit backlogs.
3. Plan for and promote sustainable water infrastructure.
4. Meet federal and state program requirements.

The 2008 reorganization resulted in better decision-making processes across programs and allows the division to focus efforts toward implementing the operational plan. In addition to the structural reorganization, DOW continues to use lean management principles to efficiently carry out its mission, including visual management, value-stream mapping, and systematic problem-solving.

As you read through this report, you will find a variety of initiatives that directly address these priorities of the operational plan. There are some issues discussed below that may be of particular interest and importance to the reader.

DOW has been working over the past 18 months to ensure our regulations are current relative to federal regulations, new federal rules, applicable case law and technological advances. In the past year, DOW has updated regulations pertaining to public drinking water rules for treatment, KPDES permits and water quality standards, including antidegradation. DOW continues to work on drinking water rules, KPDES regulations, drinking water facility construction rules and regional wastewater facility planning. In conjunction with the effort to update regulations, DOW made an effort beginning in 2008 to update permit and certification fees, some of which had not changed since 1984. In SFY 2009 DOW updated fees for both the KPDES permit program and the lab certification program, which involved amending 401 KAR 5:310 and 401 KAR 8:050, respectively. DOW personnel met

numerous times with representatives of regulated entities and crafted an agreement to modernize the fee structures, providing the division with necessary resources to maintain the appropriate level of service and support for these programs.

The division has been working very hard to resolve issues raised by EPA with regards to permitting coal mining facilities. EPA has introduced an interim guidance, based on research conducted by EPA staff, that outlines expectations that permitted coal activities in three ecoregions of the Appalachians should not result in stream conductivity levels exceeding approximately 300 μS/com; essentially interpreting Kentucky's narrative standard for conductivity. Interim guidance is not binding on the state, and in fact, Kentucky may be precluded by its own laws to include permit conditions that effectively enforce this interim guidance. The division has drafted permits that were intended to address EPA's concerns regarding coal mining without incorporating the narrative conductivity interpretation of the interim guidance. However, the division anticipates EPA will object to these permits, leaving uncertain the path forward for coal mine discharge permits.

Based largely on concerns related to coal mining activities, permitting and water quality issues, the Appalachian Center for the Economy and the Environment and others in March filed a petition with EPA to withdraw the NPDES program delegation from the state of Kentucky. The petition cites several major concerns, most relating to permitting and the water quality impacts of coal mining. DOW is currently working on a response to EPA regarding this petition.

DOW is expending significant efforts regarding electronic tools for permitting and outreach. The division is currently developing applications for e-permitting and e-certification beyond the current applications for stormwater construction permits and water well drillers certification. In addition, DOW is working vigorously to prepare for the conversion from PCS to ICIS to eventually allow regulated entities to submit compliance data electronically and make such data more accessible to the public. The division is also consolidating and upgrading its internal water quality databases, which will serve as the water quality data repository for Kentucky. DOW is working with other states to develop a Web-based application that will provide an improved interface for data management, storage, and availability, including to the public.

DOW completed the Integrated Report to Congress on the Condition of Water Resources in Kentucky, 2010, volumes 1 and 2, prepared every two years as required by Section 305(b) of the Clean Water Act. The 2010 report is based primarily on results from monitoring performed between April 2007 and March 2009 in the Big Sandy-Little Sandy-Tygarts and Kentucky River basin management units (BMUs), This report also incorporates statewide update assessment data and results from publicly accessible reservoirs (lakes). As required, the Integrated Report includes a list of waters that do not or are not expected to meet state water quality standards and a priority ranking for these waters, taking into account the severity of the pollution and the designated uses of the water (i.e., fishing, swimming and/or water supply).

To date, 9,967 miles (about 11 percent) of streams have been assessed for coldwater and warmwater aquatic habitat designated uses of the approximately 92,000 miles of streams statewide. The two major sources of these

pollutants were runoff from agricultural activities and habitat modification. The Integrated Report provides a mixed bag of results with improvements in some watersheds (e.g. Cumberland River), continued challenges in other watersheds (e.g. Big Sandy) and a variety of improvements and status quo distributed throughout the state. DOW assisted the Kentucky Infrastructure Authority in committing approximately $70 million in American Recovery and Reinvestment Act (ARRA) stimulus funds to drinking water (~$50M to 43 projects) and clean water (~$20M to 17 projects) projects by the February 17, 2010 deadline. The division continues to conduct engineering reviews and manage these projects to ensure progress is made and compliance with various aspects of the ARRA, such as the "Green" and "Buy American" provisions of the ARRA.

Finally, in the current budgetary climate, DOW is required by necessity to determine whether the functions it continues to carry out are efficient and effective. DOW is re-evaluating which functions may need to be improved, consolidated or eliminated, based on how the program serves the division's mission. The 2008 reorganization brought to light a number of challenges that the division has taken to and is currently working to address.

But we also need to be responsive to current conditions as we implement this plan and its associated initiatives Some of the conditions we experienced during SFY 2009 that demanded our attention included the 2008 drought, the 2009 ice storm, as well as staffing and budget constraints. Here too, you will find other examples within this report of conditions that warranted our immediate attention.

Regardless of whether our efforts were invested toward operational plan implementation or the circumstances in play at any particular point in time, we continued to function as a division focused on our mission "*to manage, protect and enhance the quality and quantity of the Commonwealth's water resources for present and future generations through voluntary, regulatory and educational programs*." Our commitment to this mission shall remain.

DIVISION OF WATER MISSION STATEMENT

To manage, protect, and enhance the quality and quantity of the Commonwealth's water resources for present and future generations through voluntary, regulatory and educational programs.

The Division of Water (DOW) Operational Plan is intended to serve as a road map toward accomplishing its mission, taking into consideration current environmental, regulatory and resource conditions. The division has identified five major objectives in this endeavor:

1. Protect, manage and restore water resources.
    a. Fully implement wet weather compliance programs.
    b. Determine a Quality Assurance (QA) standard for internally and externally generated data for cross-program sharing.
    c. Implement a nutrient criteria strategy.
    d. Develop and implement Total Maximum Daily Loads (TMDLs).

2. Reduce DOW permit backlogs
    a. Maintain progress toward reducing and/or maintaining zero permit backlogs.

3. Plan for and promote sustainable water infrastructure.
    a. Promote the USEPA's Sustainable Infrastructure Initiative.
    b. Plan for sustainable infrastructure.

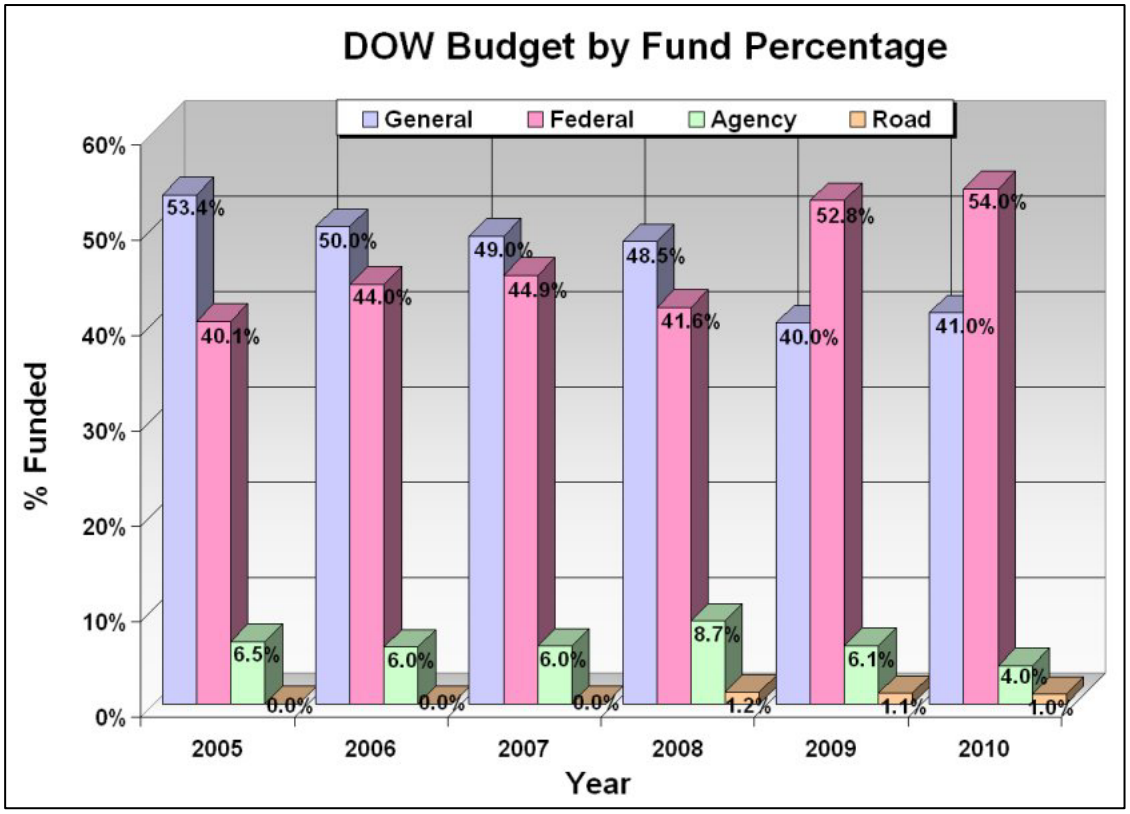
4. Meet federal and state program requirements.
    a. Meet federal USEPA requirements.

Resource Planning and Program Support Branch

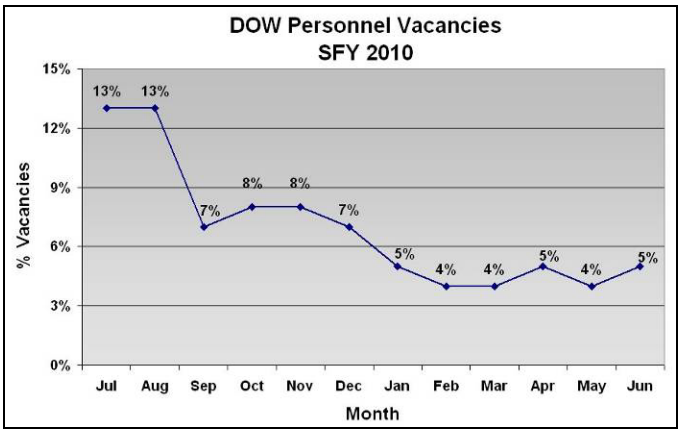
The Resource Planning and Program Support (RPPS) Branch is responsible for planning, coordinating, and facilitating the administrative, financial, and infrastructure functions of the division, including the development and management of the division's budget. Four sections comprise the RPPS Branch. The Program Support Section facilitates division training needs, receives and pays invoices, tracks inventory, and orders equipment and supplies. The Grants Management Section manages the federal grant programs, which are used to support personnel costs, equipment, training, and travel. Federal funds are also used to support projects that are developed in coordination with the division and implemented by a variety of nonprofit groups, state universities, local governments, other state agencies, and private sector companies. These projects must have a water-quality or water-infrastructure focus. The Information Technology (IT) Section performs IT functions and manages IT needs and infrastructure. This section also manages the Tools for Environmental Management and Protection Organizations (TEMPO) database and works with program staff to implement electronic solutions that the division develops. The Data Entry and Management Section performs data entry, manages the file room, and processes open records requests. Additional duties performed by RPPS Branch staff include the development and promulgation of administrative regulations and legislation.

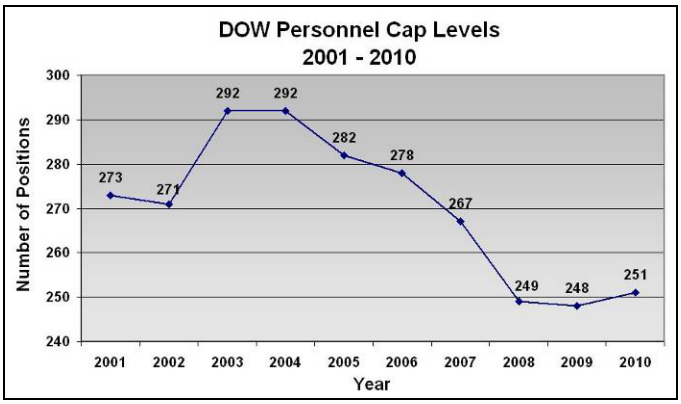
Budget Issues

DOW activities are maintained by general fund appropriations, federal grants from the United



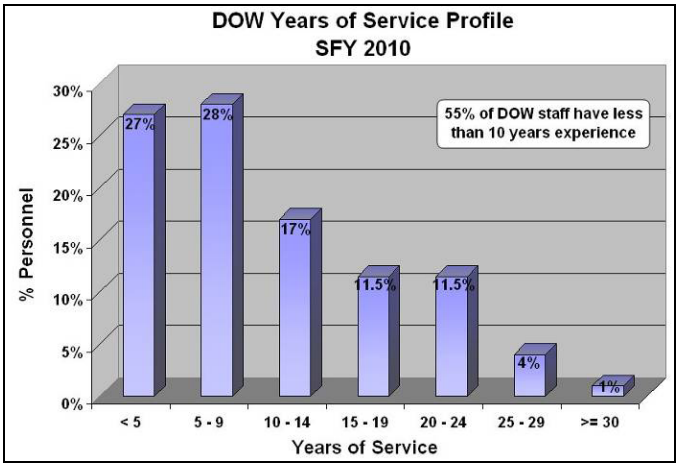
States Environmental Protection Agency (EPA) and the Federal Emergency Management Agency (FEMA), and fees collected for permit and certification activities. An analysis of DOW funding for State Fiscal Year (SFY) 2010 shows the division's funding structure continues to change, as it did in SFY 2009. In SFY 2010, federal funding comprised 46 percent of the agency's budget. In SFY 2009, state general funds comprised 40 percent of the agency's budget; in SFY 2010, this percentage grew to 41 percent. The division's revenue generated through permit and certification was four percent of the division budget for SFY 2010. A road fund account made up the remaining one percent of the division's budget.





The division has the budget to maintain 251 full-time, permanent employees. The number of employees the division can maintain has decreased 17 percent since 2000 – a loss of 19 positions. This reduction in staffing has resulted in a strain on programs and staff. The division is challenged to provide adequate service to the Commonwealth.

Budget reductions have been disproportionally realized in the Surface Water Permitting Branch, the field office inspectors, and the Water Quality Branch because these programs are significantly more dependent on general funds than on federal funding sources.



In SFY 2010, the agency was successful in updating the Kentucky Pollution Discharge Elimination System (KPDES) permit fees. This change represented the first substantial increase in program fees since the KPDES program was delegated to Kentucky from the USEPA in 1983. While the fee increase does not cover the full cost of supporting the KPDES program, the proposed fees will generate $1.6 – $1.7 million annually compared to approximately $450,000 generated prior to the permit fee increase.

Newly Effective Regulations

Fiscal Year 2010 saw the successful promulgation of many administrative regulations. Regulation updates kept DOW current with federal requirements and changing technologies.

Drinking Water Regulations, Chapter 8

- 401 KAR 8:010 "Definitions for 401 KAR Chapter 8" (effective September 25, 2009)
- 401 KAR 8:020 "Public and semipublic water supplies; general provisions" (effective June 3, 2010)
- 401 KAR 8:022 "Sanitary surveys" (effective September 25, 2009)
- 401 KAR 8:040 "Laboratory certification" (effective March 5, 2010)
- 401 KAR 8:070 "Public notification" (effective June 3, 2010)
- 401 KAR 8:075 "Consumer confidence reports" (effective September 25, 2009)
- 401 KAR 8:200 "Microbiological monitoring" (effective June 3, 2010)
- 401 KAR 8:250 "Inorganic chemical sampling, analytical techniques, and maximum contaminant levels" (effective June 3, 2010)
- 401 KAR 8:300 "Lead and copper" (effective June 3, 2010)
- 401 KAR 8:510 "Disinfectant residuals, disinfection by-products, and disinfection by-product precursors" (effective June 3, 2010)
- 401 KAR 8:550 "Radionuclides" (effective June 3, 2010)
- 401 KAR 8:600 "Secondary standards" (effective September 25, 2009)

DOW amended many drinking water regulations to keep current with federal requirements. The division has determined that an appropriate strategy for keeping state regulations updated is to cite the federal regulations that contain specific requirements, rather than duplicate the narrative of those federal regulations in the state regulations. The regulations identified in the above list cite their federal counterparts.

- 401 KAR 8:030 "Water treatment plant and water distribution system classification and staffing" (effective February 5, 2010)

401 KAR 8:030 establishes standards for the staffing and classification of water treatment plants and water distribution systems. The amendment moved the requirements pertaining to the examination and certification of operators to a new chapter, 401 KAR 11, which is regulated by the Division of Compliance Assistance (DCA). The amendment also adds a treatment plant classification specific to bottled water systems and further clarifies the sub-classifications of water treatment plants.

Surface Water Permit Regulations, Chapter 5

- 401 KAR 5:002 "Definitions for 401 KAR Chapter 5" (effective September 25, 2009)
- 401 KAR 5:005 "Permits to construct, modify, or operate a facility" (effective September 25, 2009)
- 401 KAR 5:055 "Scope and applicability of the KPDES Program" (effective September 25, 2009)
- 401 KAR 5:060 "KPDES application requirements" (effective September 25, 2009)
- 401 KAR 5:065 "KPDES permit conditions" (effective September 25, 2009)
- 401 KAR 5:080 "Criteria and standards for the Kentucky Pollutant Discharge and Elimination System" (effective September 25, 2009)
- 401 KAR 5:310 "Surface water permit fees" (effective November 17, 2009)

Regulations in this chapter, with the exception of 5:005 and 5:310, were amended to reflect current federal standards. As with the drinking water regulations, DOW is citing the corresponding federal regulations when appropriate, instead of reproducing the narrative.

The amendment to 401 KAR 5:005 clarifies the setback requirements for individual residences and provides specific details on the regulation of animal feeding operations that do not intend to discharge. The amendment alters the backup unit and power requirements so that the most stringent requirements only apply to discharges to the most sensitive receiving waters.

401 KAR 5:310 is a new administrative regulation that adjusts the fees that were established in KRS 224.70-120 and creates a fee for an Industrial Kentucky No Discharge Operational Permit (KNDOP) and for a coal mining general permit. The individual discharge permit fees were adjusted based on the consumer price index. The fees established for general coal permits and industrial KNDOPs are based on the cost to review the permit application.

Water Quality Standards Regulations, Chapter 10

- 401 KAR 10:026 "Designation of uses of surface waters" (effective July 6, 2009)
- 401 KAR 10:029 "General provisions" (effective July 6, 2009)
- 401 KAR 10:030 "Antidegradation policy implementation methodology" (effective July 30, 2009)
- 401 KAR 10:031 "Surface water standards" (effective July 6, 2009)

The Clean Water Act requires states to review their water quality standards on a 3-year, or triennial, basis. Kentucky's water quality standards regulations were last approved by the Environmental Protection Agency in December 2004 and April 2005. Division of Water promulgated amendments to those regulations in 2008.

The amendment to 10:026 added 233 previously unlisted outstanding state resource waters (OSRWs) and removed two (2) previously listed OSRWs because of faulty location records for federally threatened and endangered species. The amendment to 10:029 clarified that, upon request by an applicant, the cabinet shall assign mixing zones and consider the geometric limits of such mixing zones. The amendment to 10:031 updated water quality criteria to reflect scientific developments.

Antidegradation Policy

401 KAR 10:030 establishes a methodology to implement the antidegradation policy contained in 401 KAR 10:029 by establishing procedures to control point source water pollution in waters affected by that policy.

Kentucky first promulgated 401 KAR 5:030, antidegradation policy implementation methodology, in 1995. The most recently approved regulation was the subject of litigation that was resolved in September 2008. At that time, the U.S. Sixth Circuit Court of Appeals upheld in part, and remanded in part, Kentucky's regulation. The remand of 401 KAR 5:030 coincided with the 2008 triennial review of Kentucky's water quality standards. The amended regulations were tentatively scheduled to be heard as part of the October 2008 agenda of the Administrative Regulation Review Subcommittee. However, the

Cabinet requested that consideration of the regulations be deferred each month in an effort to resolve the issues surrounding the antidegradation requirements in 401 KAR 10:030 (formerly 5:030).

The U.S. Sixth Circuit Court of Appeals upheld those parts of the Commonwealth's antidegradation regulation that pertained to selection of waters that were afforded Tier II protection and remanded the parts of the regulation that pertained to six categorical exceptions of certain types of discharges from Tier II review. Five of the six exceptions were remanded by the Court on a finding that USEPA did not have adequate information to determine that the exempted activities would not create more than *de minimis* degradation. The sixth exception, for discharges from coal mining operations, was remanded because the regulation was at variance with the Cabinet's procedures for administering the antidegradation review and the Court determined that USEPA had relied on "unenforceable commitments" in its approval of this exception.

Following the decision of the Sixth Circuit and after consulting with USEPA, the Cabinet convened a workgroup consisting of the parties involved in the antidegradation litigation and other interested parties to resolve the Court's remand. The workgroup met nine times, beginning in October 2008. After much consideration, the Cabinet removed five of the existing exceptions to Tier II review. In the proposed amendment, the cabinet allows for a *de minimis* exception, which has been approved by the Court. Additionally, the regulation provides an exception that does not authorize any new pollutant to be discharged beyond that previously authorized and thus the Cabinet maintains cannot constitute additional degradation. The Cabinet also identified four categories of discharges for which antidegradation procedures will be addressed in the permits themselves or for which antidegradation requirements are satisfied by alternative protective processes. These provisions are not "exemptions" to the antidegradation process.

The amended regulation was approved by the Kentucky legislature and became effective on July 30, 2009. The Cabinet submitted in November 2009 the revised water quality standards regulations (all of 401 KAR Chapter 10) to the USEPA for approval, as required by the Clean Water Act. USEPA has not yet issued a decision.

Regulations in the Promulgation Process

In addition to the regulations that have become effective in the last fiscal year, DOW has several regulation packages in the middle of the promulgation process.

KPDES Regulation Update

- 401 KAR 5:045 "Biochemically degradable wastes; treatment"
- 401 KAR 5:070 "Provision of the KDPES permit"
- 401 KAR 5:075 "Cabinet review procedures for KPDES permits"

Regulations in this package are being updated to reflect current federal standards and to correct internal inconsistencies in citations. The regulations were filed with the Legislative Research Commission in February 2010..

Drinking Water Update

- 401 KAR 8:150 "Disinfection, filtration, and recycling"

The amendments to this administrative regulation simply update federal citations. The substantive

requirements of the existing regulation remain unchanged. This regulation was filed with the Legislative Research Commission in March 2010.

Facility Construction

- 401 KAR 8:100 "Design, construction, and approval of facilities"

The amendments to this administrative regulation incorporate the most recent version of "Recommended Standards for Water Works", and updates "General Design Criteria for Surface and Groundwater Supplies". Other amendments are to update the requirements for a professional engineer's seal on public water supply projects, incorporate application forms to be submitted with projects, reduce the number of copies of plans required for submittal, and include an option to request a variance. This regulation was filed with the Legislative Research Commission in June 2010 and the proposed changes are not final.

Information Technology Section

Tiered TEMPO Support

The RPPS Branch initiated a TEMPO tiered support system in order to more efficiently support DOW TEMPO users. TEMPO points of contact have been indentified for each of the Division's six branches. These contacts act as the Tier I TEMPO Support for the branch and/or section when there is a TEMPO issue. If they are unable to address the issue, they are responsible for escalating the problem to the IT Support section (Tier II) through the Cabinet's electronic Help Desk system. This group is also responsible for testing all new TEMPO builds. These contacts have been working closely with the IT Support Section staff to manage their business processes in TEMPO in an attempt to mimic the Division's 2008 reorganization. The TEMPO reorganization has continued throughout SFY 2010.

TEMPO Modernization

During the second quarter of 2009-2010, DOW IT staff began working with DEP staff to determine if a TEMPO modernization project is financially viable.

Electronic Open Records Request (ORR) and ePay

In an effort to increase efficiency and reduce staff burdens, DOW has continued to develop electronic processes to support important business requirements like Open Records Requests (ORR). Under KRS 61.880(1), the Division must make a decision to grant or deny an ORR within three working days after the request is received. In order to expedite the ORR process, a generic DOW ORR email account has been created. The email account, dowopenrecords@ky.gov, is posted on the Division's website. Previously, the public was directed to email the DOW ORR coordinator at her work email address. Because these requests must be addressed within three business days, email coming to a specific person's email account presented logistic concerns. With the new system, the point of contact and a back-up contact have access to the open records email account.

DOW has implemented an ORR tracking system in TEMPO. All communications regarding ORRs are now maintained in TEMPO. This update provides the DOW records custodian and a back-up custodian access to the requests and all communications regarding requests. Implementing the TEMPO tracking system has introduced transparency into this important business process.

Public Notice

DOW IT Section, in coordination with the lean team and program staff, developed a draft Standard Operating Procedure (SOP) for a new public notice process. The process uses TEMPO and the DEP Web portal to facilitate the public notice process. The new process was implemented prior to June 2010 with additional upgrades to be made in SFY 2011.

CMS to SharePoint Migration

All DOW internet web pages were converted from Content Management System (CMS) to the new SharePoint system on June 29, 2010.

Capacity Development

During the 4th quarter of fiscal year 2009-2010, DOW IT staff began working with Kentucky Infrastructure Authority (KIA) to modify the sanitary survey document used by the Capacity Development Section of the Water Infrastructure Branch so that data can be captured, stored, and made available to the public in KIA's Water Resource Information System (WRIS).

PCS to ICIS Conversion Project

The main goal of the Permit Compliance System (PCS) to Integrated Compliance Information System (ICIS) conversion project is to successfully migrate data from the USEPA mainframe database, PCS, to an Oracle relational database, ICIS, while updating the structure of the data and providing the tools necessary for the efficient management of the various KPDES programs. The following processes began during SFY 2010:

1. Convert PCS data to the new requirements
2. Perform QA/QC on existing PCS data prior to migration to ICIS
3. Analyze, compile, and enter all data missing in PCS into ICIS.

K-WADE Migration

DOW began the process of implementing the Kentucky Water Assessment Data for Environmental Monitoring (K-WADE) system to replace Kentucky's current Ecological Data Application System (EDAS). A Request for Proposal was submitted and a project proposal was accepted. The contract will be initiated in SFY 2011.

The Compliance and Technical Assistance Branch (CTAB) is currently staffed by 76 employees. This branch includes the **Drinking Water Compliance and Technical Assistance Section** and the **Regional Field Offices.**

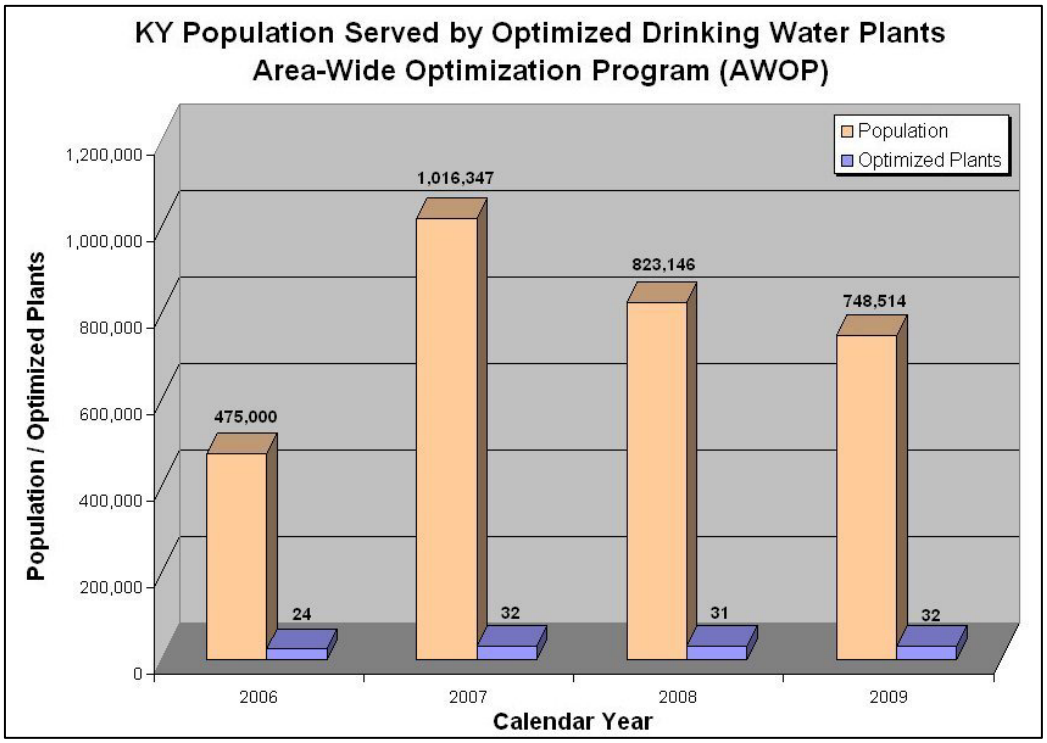
Drinking Water

Area-Wide Optimization Program

The drinking water Area-Wide Optimization Program (AWOP) continued its focus on optimizing water plants for turbidity and microbial removal. As a result, over 800,000 citizens in Kentucky were provided with safer water from microbial exposure. The partnership began with USEPA's Technical Support Center (Cincinnati) on a disinfection by-product (DBP) control. Performance-Based Training was successfully completed in May 2010. Kentucky applied its state criteria for ranking water systems based on DBP compliance and began a second DBP Performance-Based Training event in western Kentucky in March 2010 involving six water systems, including several that were targeted by the new Significant Non-Compliance (SNC) process.

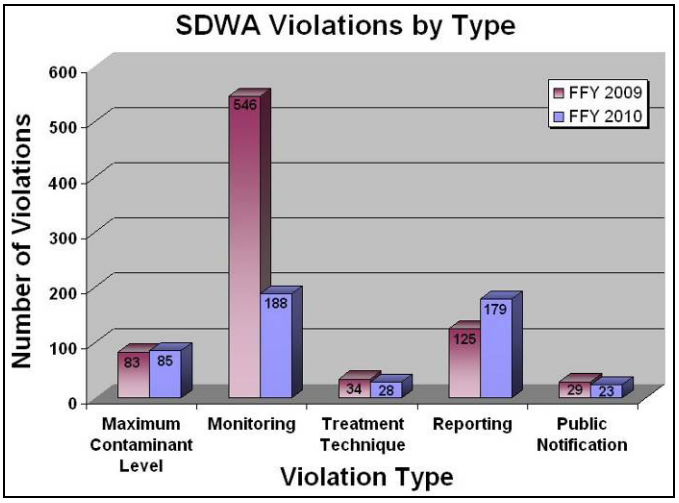
Safe Drinking Water Act Primacy and Regulatory Development

Revisions to 401 KAR Chapter 8 enabling DOW to refer to federal Safe Drinking Water Act (SDWA) regulatory language were completed in 2010. One regulatory package effective February 2010 included drinking water system classification and staffing regulations as a companion regulation with drinking water operator certification from DCA. A second package effective June 2010 removed date



references to Federal Register dates and amended language following USEPA comment. Two smaller packages containing additional amended language from USEPA will be final after July 2010. In June 2010, the drinking water plans review regulations were filed and had begun the legislative approval process. A capacity development regulation is still under divisional consideration.

For SFY 2010, nine primacy packages were submitted to USEPA Region 4. Interim primacy was granted on eight of the nine, with approval for the ninth dependent upon the submittal of two remaining packages in July and August 2010.



Kentucky Public Water System Compliance Rates

Kentucky's SFY 2010 performance measures for compliance with SDWA include the percent of the state population receiving drinking water meeting health-based standards and the percent of community water systems that deliver water meeting health-based standards. For SFY 2010 through 1st quarter 2010, 87 percent of Kentucky's population received water meeting health-based standards (cf. 87 percent for SFY 2009). It should be noted that these percentages include *all* water systems, not just those classified as community systems. As of July 31, 2010, for the Federal Fiscal Year (FFY) of October 2009 through September 2010, the percentage for all water systems is 90 percent.

Through 1st quarter 2010, for SFY 2010, 460 drinking water violations were issued; 81 percent related to public notification, monitoring and reporting (M&R) (cf. 817 violations issued for the complete previous state fiscal year; 85.6 percent related to pubic notification and M&R).

DOW successfully implemented web-release version 2.3 of the State Drinking Water Information System (SDWIS) incorporating compliance and inventory aspects of recently-promulgated SDWA regulations. As of June 30, 2010, the drinking water program had submitted compliance correctly and on-time to USEPA for 13 consecutive quarters.

The drinking water program completed the early implementation efforts associated with the Stage 2 Disinfection By-Product and Long Term 2 Surface Water Treatment in April 2010. This has involved data tracking, report approvals, SDWIS integration and enforcement activities (in conjunction with USEPA Region 4). The Groundwater Rule was effective in December 2009 impacting approximately 145 systems treating or purchasing from systems treating groundwater.

One hundred seventeen surface water and groundwater sanitary surveys were completed during SFY 2010, in conjunction with the Capacity Development Section which conducted the managerial and financial assessment sections. SFY 2010 saw an increase in the number of sanitary surveys compared to SFY 2009 (91) with the inclusion of the groundwater systems.

As of June 30, 2010, the number of Public Water Systems (PWSs) in Kentucky was 531. The number of federally regulated drinking water systems totaled 471.

In March 2010, the Drinking Water Compliance and Technical Assistance Section began distributing an electronic quarterly newsletter highlighting related activities, upcoming regulatory events and compliance advice. This communication tool is helpful in keeping all staff, including those in ten regional offices, informed of program changes and accomplishments.

New Drinking Water Enforcement Policy

EPA initiated a new Enforcement Response Policy (ERP) for FFY 2011 (beginning in October 2010) to replace the current Significant-Noncompliance (SNC) list. The ERP is a new approach for enforcement targeting under SDWA for all public water systems. Kentucky began implementing the ERP on a trial basis in January 2010.

The ERP is designed to identify water systems with violations that will become an enforcement priority by focusing on systems with health-based violations that show a history of violations across multiple rules. The ultimate goal of the ERP is to return to compliance those systems identified as an enforcement priority by using an Enforcement Targeting Tool (ETT). The ETT enables the weight-based prioritization of water systems by assigning each violation a number of points based on the assigned threat to public health. The enforcement targeting formula calculates a score for each water system based on open ended violations and violations that have occurred over the past 5 years. For each PWS, a point score of non-compliance is calculated as follows:

Sum (S1 + S2 + S3 + …) + n

S = violation severity factor

- 10 – each acute health-based violation
- 5 – each other health-based violation and TCR repeat monitoring violation
- 1 – each other M/R, or any other violation

n = # of years that the system's oldest violations have been unaddressed (0 to 5)

Any water system with a score of 11 or greater will be considered a priority system for an enforcement response under the ERP. All priority systems must be addressed under formal enforcement actions within two quarters.

DOW, in cooperation with Division of Enforcement (DENF), has taken a proactive approach to the ERP. In order to have any implementation issues resolved by October 1, 2010, DOW utilized the 1st quarter ETT, referred the top eight water systems to DENF and has been working to refine the process to achieve a complete agreed order (AO) within the required two quarters. This joint effort has laid the groundwork for a smooth transition in Kentucky.

Integration with other Agencies and regulated entities

DOW staff continued to work with the Public Service Commission (PSC) and with the Division of Public Health Protection and Safety (DPHPS) regarding the coordination of common drinking water issues, such as inspections, boil water advisories, potable water service requirements, mobile home parks and unaccounted-for water. The Division of Plumbing (DOP) was also involved in discussions related to potable water service and cross-connections. In June 2010, DOW approached the Kentucky Department of Parks offering guidance and assistance toward the operation and

maintenance of the park drinking water storage tanks.

DOW continued to support the Drinking Water Advisory Committee, which is comprised of regulated entities, professional organizations and related state agencies. Subcommittees associated with that group that continued activity included Compliance, Engineering and Capacity Development. In conjunction with the DOP, a new subcommittee on cross-connections was initiated in August 2009.

Drinking water related training events were conducted with PSC, Kentucky Rural Water Association, Kentucky Water and Wastewater Operator Association, Rural Community Assistance Program and the Kentucky-Tennessee section of the American Water Works Association.

Laboratory Certification Program Update

DOW certifies laboratories that conduct analysis relating to monitoring requirements under the SDWA. DOW has certified a total of 102 laboratories (located both in and out of the state), including 46 microbiological laboratories and 56 chemical laboratories.

DOW also conducts audits of the certified labs to ensure compliance with their certifications. Fourteen chemical audits were performed in SFY 2010 by the Division's Laboratory Certification Officer. The number of microbiological audits performed by Morehead State University remained at 44.

On-going Challenges

Several challenges face the drinking water program for SFY 2011, including the number of SDWA regulations to be implemented and related database issues. With the revisions to the state drinking water regulations complete, DOW will now need to resubmit primacy packages for older SDWA regulations to reflect those changes. The Federal SDWIS database still lags behind rule implementation. Kentucky, as with other states, is creating program databases outside the federal ones and other work-arounds to track these rule requirements.

The Sanitary Survey process expanded to groundwater systems in December 2009. As noted earlier, this increased the number of sanitary surveys by 29 percent for SFY2010 with an anticipated increase of an additional 28 percent for SFY2011.

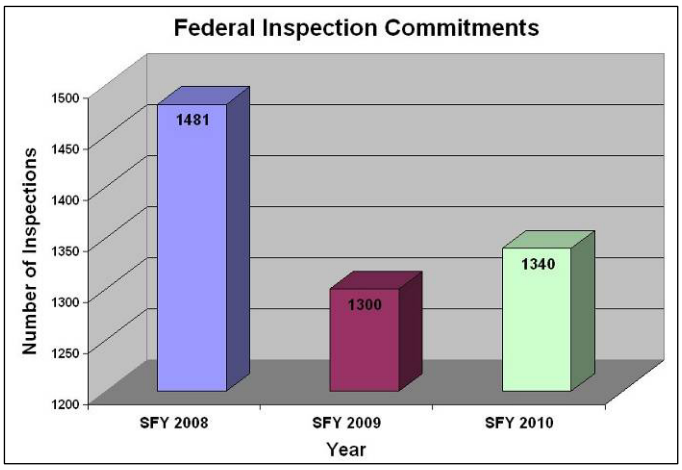
The drinking water program continues to be challenged to provide electronic submittal ability for Monthly Operation Reports (MORs). Issues with the ePortal are still being resolved.

The program is also evaluating issues such as sub-metering, advanced treatment options, distribution system operations and water loss.

Regional Offices

Training, equipping and focusing management are keys to the quality of consistent inspections, technical assistance and enforcement. Federal program requirements mandate reporting percentage of inspections at permitted facilities.

The USEPA 106 grant work-plan commitment is based on the FFY October 1 thru September 30. As of June 30, 2010, the percentage of completed inspections toward this commitment was 72.18 percent. In FFY 2009 and FFY 2010 federal commitments were essentially the same with the following requirements: 50 percent majors (Waste Water Treatment Plants (WWTPs) with 1 MGD

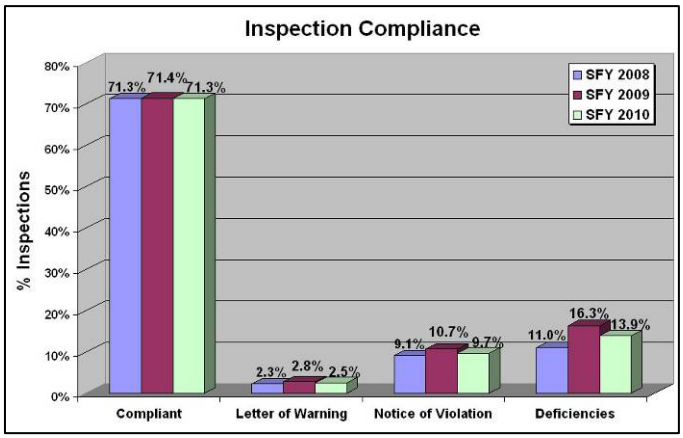


capacity or greater), 20 percent minors (WWTPs with <1 MGD capacity), 12 percent permitted Stormwater Construction sites, 10 percent permitted Stormwater Industrial sites, 20 percent Municipal Separate Storm Sewer Systems (MS4s), 50 percent Combined Sewer Overflow (CSO) communities, and 20 percent permitted Concentrated Animal Feeding Operations. The only addition was performing Sanitary Sewer Overflow (SSO) inspections for the SFY 2010 work plan.

State regulations also mandate inspection of facilities under state programs. DOW field inspectors, working out of ten regional offices, conducted 3,330 inspections in SFY 2010.

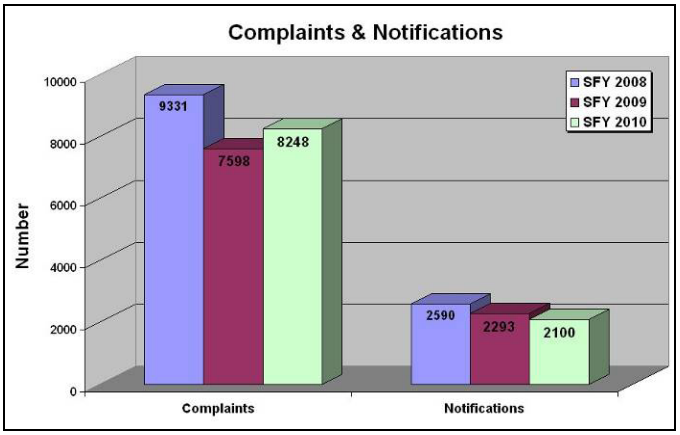
Inspections include wastewater treatment facilities, public water systems, as well as facilities operating under general permit coverage, such as stormwater construction, industrial, agricultural, residential, and oil & gas operations. Inspections resulted in the issuance of 565 Notices of Violation and 87 referrals to DENF for additional administrative action and civil penalties.

Several regulations require permitted facilities to notify DOW when certain disruptions occur. Notifications consist primarily of wastewater bypasses/overflows and drinking water main breaks,



low pressure or loss of pressure in a drinking water distribution system, loss of disinfection or other treatment disruption. The Division received 8,248 required notifications in SFY 2010.

Inspectors for the Division require broad programmatic knowledge (49 inspection types) and experience in addressing compliance issues, including necessary assistance and encouragement.



A large portion of the workload for DOW regional field office personnel is to respond to complaints and notifications. Responses can range from the mundane to extensive commitment of resources (e.g. ice storm or flood response). In SFY 2010, field office inspectors investigated a total of 2,100 complaints; a significant percentage of complaints resulted in detections of violations of one or more

regulations. DOW is challenged in planning for such activities, especially significant events because of their unpredictable nature and the corresponding resource demands. Nevertheless, DOW inspectors continue to respond to complaints, emergencies, and regulatory requirements in a timely and professional manner.

CTAB hired ten inspectors, three supervisors and one administrative specialist, all filling existing, vacant positions. These additional staff and changes have better equipped the branch to regulate facilities and assist the public.

Branch Accomplishments And Challenges

The additional staff helped CTAB meet 99 percent of the goals established in the CTAB 2010 Operational Plan. Accomplishments during SFY 2010 include the following:

- development of an agriculture water quality corrective measures protocol,
- successful implementation of basic operator training, and
- development of communication procedures between the field offices and central office.

Due to adoption of some federal regulations, updates were needed for our inspection database to reflect those regulation changes. An extensive review of the updates required was completed during the SFY 2010.

The largest hurdle for CTAB in 2010 was overcoming the decline in staff experience and training the new hires. In SFY 2010, 38 percent of branch staff held 0-3 years experience while only five percent held more than 20 years experience. A large amount of time is spent by the veteran inspectors mentoring the new staff. The majority of CTAB staff must carry equipment for investigation purposes. This equipment must be properly maintained; if damage occurs, equipment cannot be sent to a nearby store for repair but must be shipped to specialized vendors (usually out-of-state) which may hinder a current investigation or inspection.

Perry County Drinking Water Outage

Perry County, in southeastern Kentucky, which includes the cites of Hazard, Buckhorn and Vicco, experienced significant water outages from December 2009 through early February 2010 due to extremely cold weather, river conditions and water main breaks. A State of Emergency was declared by the Governor in January, allowing the National Guard to assist with mobile treatment facilities. In addition, Breathitt County Water District and Knott County Water and Sewer District were able to install water mains to Buckhorn and Vicco respectively to augment the drinking water supplied by Hazard. Several water systems and the Kentucky Rural Water Association assisted Hazard with finding main breaks and leaks that allowed the city to slowly begin restoring water service.

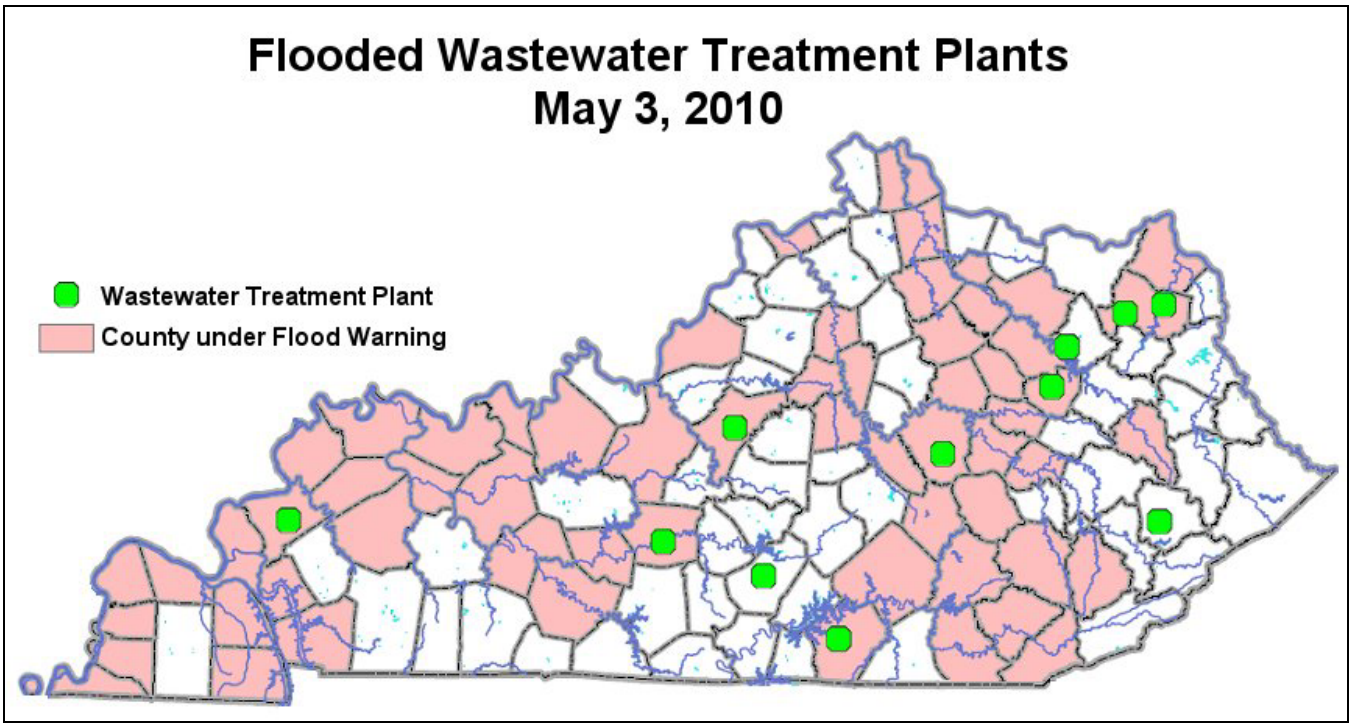
SFY 2010 Flood Incidents

SFY 2010 brought one isolated and one statewide flood event. Louisville experienced an isolated flash flood event affecting water and wastewater systems for those areas. The Louisville regional office saw an increase in notifications during this time period.

On May 1 and 2, 2010, heavy rainfall impacted the state, resulting in as much as eight inches of rainfall

in less than 24 hours in some areas of the state, requiring activation of the new Environmental Response Center (ERC). Eighty-six wastewater systems reported bypasses and overflows while eleven reported being under water.

Three drinking water plants were flooded and two more experienced impacts to the raw water pump stations. At the height of the event, 39 boil water advisories (BWA) had been issued affecting over 130,000 residents of the state. Water system staff at affected treatment plants reacted quickly, with all plants back on-line and producing water within a week of the event.

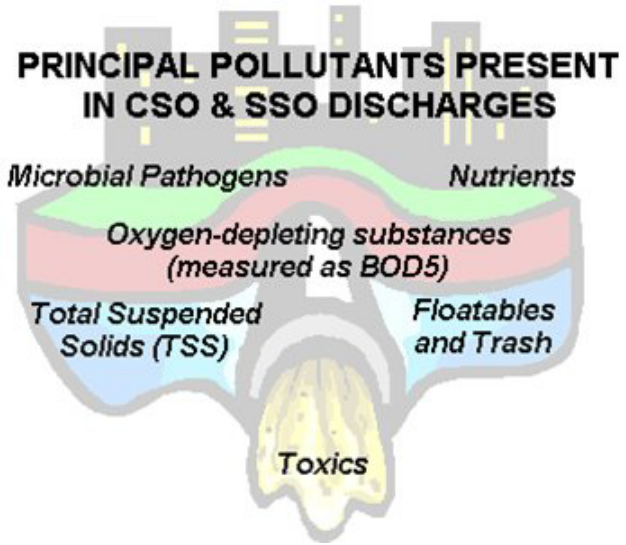


Wet Weather Section

One of the major objectives for the Surface Water Protection Branch (SWPB) in SFY 2010 was to fully implement wet weather compliance programs. These programs include developing plans to eliminate combined sewer overflows (CSOs), sanitary sewer overflows (SSOs) and other discharges related to wet weather.

CSOs/SSOs

Combined sewer systems are an old design practice in civil engineering that involves the conveyance of both stormwater and sanitary wastewater in the same pipe. When wet weather events occur, often these systems become inundated with stormwater flow and they are designed to discharge that water, untreated, directly into streams. These events are known as combined sewer overflows, or CSOs. CSOs are legal discharges under the Clean Water Act, and the rules pertaining to this type of discharge are outlined in USEPA's 1994 CSO Control Policy. Another type of wet weather related sewer problem occurs in separate sanitary sewer systems. Separate sanitary sewers are designed to only convey sanitary wastewater. Inundation of these systems in heavy precipitation events is a result of inflow and infiltration (I&I) caused by aging and cracked sewer pipe and illegal taps for the accommodation of drains and sumps. When these separate systems overflow it is known as an SSO, which is an illegal discharge under the CWA. Since the CSO policy was developed, communities have made some progress in updating their aging systems and minimizing these discharges of water that do not meet the water quality criteria. However, lack of progress in formal implementation of the CSO policy and correction of SSOs led the USEPA and the Energy and Environment Cabinet (EEC) to pursue federal Consent Decrees and state Consent Judgments against communities in order to make progress in addressing the issues. The consent orders outline specific requirements for projects and plans to eliminate CSOs (and in some cases SSOs) from the system in a time certain. Many of the communities' timeframes extend 10 to 20 years for final compliance. These Consent Decrees have a major financial impact on many of these communities, as the infrastructure problem is expensive to fix, costing more than $1.8 billion in two of the largest municipal areas alone.



Federal Consent Decrees addressing CSOs and SSOs were negotiated with four Kentucky communities and filed in U.S. District Courts. Three of the Consent Decrees have been entered by the Courts with 1 Consent Decree (Lexington) awaiting a final Court order.

State Consent Judgments addressing CSOs, and in some cases SSOs, have been negotiated with 15 Kentucky CSO communities. Fourteen of those were filed in Franklin Circuit Court and the Court

Sewer Overflow Reduction in Kentucky

There are 17 communities in Kentucky with known, active Combined Sewer Overflows (CSOs). In 2005, Kentucky and the United States negotiated consent agreements with these communities to address CSOs. There were 330 known at that time. The number of CSOs still active at the end of SFY2010 was 245. This is a 25 percent reduction in the number of CSOs in 5 years. (**NOTE:** Several of these communities are currently constructing separate storm and sanitary sewer systems. Upon completion of that construction, those systems will no longer contain CSOs.)

Equally dramatic is reduction in annual overflow volume (the gallons of untreated wastewater that enter our rivers and streams during severe wet weather events).

Of the 17 CSO communities for which records of initial overflow volumes are available, reductions in volume (as of June 30, 2010) ranged from 33 to 79 percent with the statewide known annual CSO volume decrease in 2010 of 47 percent.

Clearly, the partnership of federal, state and local governments, as billions of dollars and other public resources have been utilized in attacking this problem, has resulted in many dramatic reductions in the number of CSOs and their annual volume, yielding significant benefits to the economic, environmental and public health elements of life in these communities.

has entered those judgments and accepted jurisdiction for their subject matter.

Community	CSO	SSO	Consent Decree
Louisville Metropolitan Sewer District	111	100+	Federal
Sanitation District #1 of Northern Kentucky	97	126	Federal
Winchester	0	27	Federal
Lexington-Fayette Urban County Government	0	111	Federal
Frankfort	16	36	State
Henderson	11	12	State
Maysville	10	15	State
Paducah	11	12	State
Vanceburg	3	2	State
Ashland	8	0	State
Catlettsburg	8	0	State
Harlan	1	0	State
Loyall	8	0	State
Morganfield	2	0	State
RWRA (Owensboro)	8	0	State
Pikeville	3	0	State
Pineville	3	0	State
Prestonsburg	1	0	State
Worthington	3	0	State

All of the consent orders contain a series of remedial measures calculated to address CSOs, SSOs, and other unauthorized discharges referred to as an **Early Action Plan**, **Long Term Control Plan** (LTCP), and **Sanitary Sewer Overflow Plan** (SSOP). The **Early Action Plan** typically contains the following elements:

1. Sewer Overflow Response Protocol (SORP)
2. Capacity, Management, Operations and Maintenance (CMOM)
3. Nine Minimum Controls (NMC) Compliance Report

The submittal and review status of the major remedial measures required by the 17 CSO consent orders is summarized on the next page. All of the CSO communities have submitted their Early Action Plan documents and SSOP, if required. Fifteen of the CSO communities have submitted Interim or Final LTCPs, while the Consent

Summary Table of CSO Remedial Measure Status

	Map	SUO	SORP	CMOM	SSOP	NMC Report	Interim LTCP	LTCP [1]	Annual or Quarterly Reports [2]	Annual Review (SORP)	Other remedial measures [3]	Final Compliance Date [4]
Ashland	●	●	●	⊙	▪	●	⊙	○	⊙	○	▪	2017
Catlettsburg	●	●	⊙	⊙	▪	⊙	▪	⊙	⊙	▪	▪	*
Frankfort	●	●	●	⊙	●	●	⊙	○	⊙	○	▪	2018
Harlan	●	●	●	⊙	▪	●	▪	⊙	⊙	○	▪	*
Henderson	●	●	●	⊙	⊙	●	▪	⊙	⊙	○	▪	2017
Louisville	▪	▪	●	●	●	●	●	●	⊙	⊙	▪	2020
Loyall	●	●	●	⊙	▪	●	▪	⊙	⊙	○	◈	*
Maysville	●	●	●	⊙	⊙	●	●	○	⊙	○	▪	2017
Morganfield	●	⊙	●	⊙	▪	●	▪	●	⊙	○	▪	2017
Northern KY SD #1	▪	▪	●	●	⊙	●	●	⊙	⊙	⊙	▪	2025
Owensboro (RWRA)	●	●	●	▪	▪	●	⊙	○	⊙	○	▪	2017
Paducah	●	●	●	⊙	⊙	●	●	○	⊙	○	▪	2017
Pikeville	●	⊙	⊙	⊙	▪	●	▪	▪	⊙	▪	⊙	2014[1]
Pineville	●	●	●	⊙	▪	⊙	▪	⊙	⊙	○	◈	*
Prestonsburg	●	●	⊙	⊙	▪	⊙	▪	▪	⊙	▪	▪	2015[1]
Vanceburg	●	⊙	⊙	⊙	⊙	⊙	▪	⊙	⊙	▪	◈	*
Worthington	●	●	⊙	⊙	▪	⊙	▪	⊙	⊙	▪	▪	*

Review Status
▪ Not requested
● Approved
⊙ Review In Progress
○ Not due yet
◈ To Be Determined

[1] Pikeville and Prestonsburg have deadlines for separation in lieu of an LTCP

[2] Overall status of all annual and quarterly reports

[3] Requirements that may not produce a document to be reviewed by the Wet Weather Section

[4] A final compliance date is an enforceable date by which full compliance with the 1994 CSO Policy must be achieved; Pikeville and Prestonsburg must achieve full sewer separation by this date or submit an LTCP. These dates are included in a consent order, an Administrative Order issued by U.S.EPA Region 4, or in an approved LTCP.

** The final compliance date will be determined by the implementation schedule in an approved LTCP.*

Judgments for the other two CSO communities, Pikeville and Prestonsburg, contain dates by which full sewer separation must be completed, in lieu of developing an LTCP. One community, Louisville Metropolitan Sewer District (MSD), has submitted and received approval of all documents required by its Consent Decree, and is currently implementing their LTCP, submitting quarterly and annual reports. Review and approval of these documents is a collaboration between the DOW, DENF and USEPA Region 4.

Another component of the Wet Weather compliance is MS4s. These are permitted under the following categories:

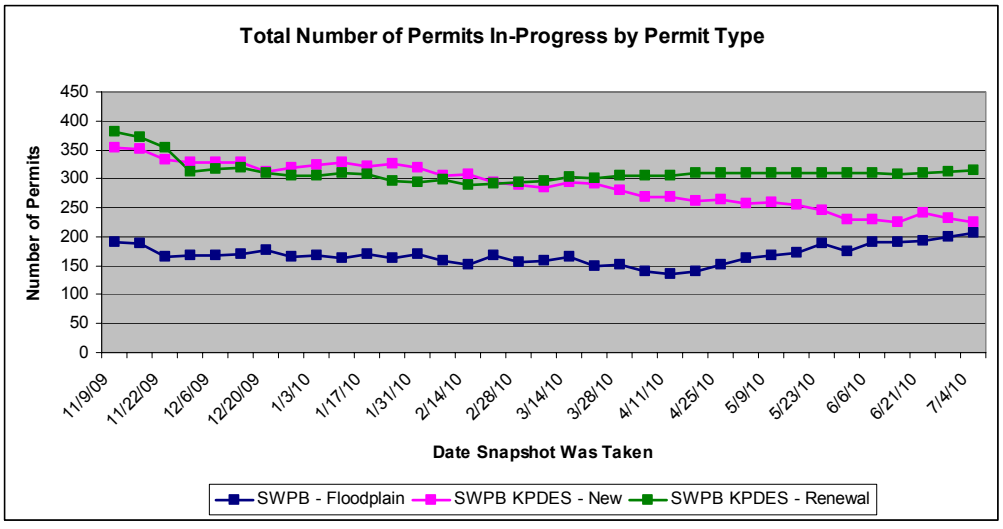
- Large MS4 250,000+ Population
  - Louisville & Jefferson County MSD
  - Lexington-Fayette Urban County Government (LFUCG)
- Medium MS4 100,000+ Population
- Small MS4 >10,000 Population or Population Density of 1000/ sq mi
  - 100 Phase 11 covered under 44 permits

Several MS4 permit actions took place this year. SWPB issued the next generation of Lexington's Phase I MS4 permit and the General Permit for Stormwater Discharges from Phase II communities (42 permitted communities). These were re-issued on July 10, 2009 and March 1, 2010, respectively. The Louisville MSD MS4 was inspected in SFY2010 along with nine Phase II communities, the total corresponding to the total required 20 percent of our permitted communities under the 106 grant workplan.

Backlog Reduction

One of the major issues facing SWPB continues to be permit backlog reduction. An intensified effort to reduce this problem began in August 2009. The first phase of this backlog reduction plan included data clearing and identifying additional positions. DOW had over 1400 bad data elements resolved in TEMPO from the time period of August through December 2009.

The number of KPDES renewals in progress has remained steady throughout the SFY. This is primarily the result of a technical focus on the coal mining industry, for which USEPA has greatly changed its policy regarding specific protection of



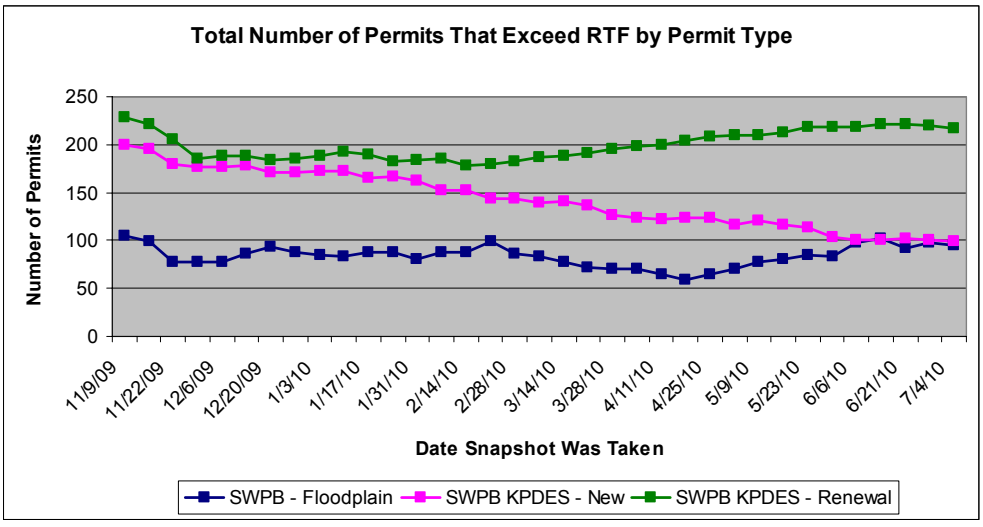
the narrative water quality standards. The focus on coal mining is also reflected in the corresponding drop of "new" applications, as coal mining constitutes a significant number of these annually.

The trend of the number of "new" permit applications exceeding the regulatory timeframe has decreased significantly in this SFY. From the time the data were largely resolved, in November 2009, the number of "new" permits exceeding the regulatory timeframe went from 200 to 100, a 50 percent reduction. However, the trend for KPDES permit "renewals" was not as positive, reflecting USEPA's focus on the mining industry. These permits saw a corresponding 3.5 percent reduction from 229 to 221.

The former Floodplain Permit Section Supervisor resigned in August 2009. This was a career employee in DOW with significant experience in Floodplain Management. As a result, SWPB saw an increase in backlog of pending floodplain permit applications from August through November 2009. This is not evident in the data above, as data clean-up was also occurring in this section, and floodplain permits were not tracked as intensively until November. With a new acting supervisor in place in October, a decrease in backlogged permit applications from 105 to 59 was realized from November 2009 through April 2010. Unfortunately, significant flooding occurred in the Commonwealth in calendar year (CY) 2010. The three biggest flooding events in March, May and July have caused the negative trend to return. The number of backlogged applications at the close of the SFY 2010 was 92, or 48 percent of the total.

The general stormwater discharge permits for construction and coal mining activities were both renewed in July 2009. This is significant as the two general permits represent more than 40 percent of the KPDES permits in Kentucky (4,300 of approximately 11,000). When the new permits were issued, the branch provided outreach to the regulated community regarding implementation of these permits by holding training classes. Two sessions were provided to the coal industry representatives, as well as four training sessions for the construction/development community. DOW believes this training will help us move the permitting program forward in a positive manner.

The Division conducted a survey of the industrial dischargers to determine how to develop a new draft



general permit for discharges of stormwater from "Other" industrial facilities. This survey was conducted in March 2010 and was sent to 1338 facilities with 434 responding to the survey. This represented 32.4 percent participation, which is a very good rate for this type of survey. The draft general permit for this activity will be completed in SFY 2011.

In addition to the details outlined in the 106 grant workplan, there are two primary methods that the USEPA uses to measure the adequacy of the KPDES permitting program. These are called the Performance Assessment Rating Tools, or PART, measures. The first measure is the number of "Priority Permits" issued by the state. Priority Permits are defined as those permit that have been expired for greater than two years and whose impact can be significant to water quality in a given area (i.e. they may be major dischargers or discharge to waters that are impaired and on the 303(d) list of waters that do not meet their designated use). Kentucky has consistently met its PART measures since the time the requirements were implemented in FFY 2005.

The goal for issuing priority permits has changed. It had been to issue 95 percent of the designated priority permits in a given FFY. However, starting in FFY 2010, this was changed to 100 percent of the permits issued in a given FFY. For this reporting period (SFY 2010), which encompasses most of FFY 2010, Kentucky has issued 14 of the 15 of our priority permits or 93 percent of our federal commitment.

The second PART measure involves maintaining the number of active KPDES permits above 90 percent of our total permitted universe. This includes facilities covered under general permits. For Kentucky there are over 11,000 active KPDES facilities. Of these, 1736 have individual KPDES permits with the remainder covered by general permits. Kentucky exceeds the 90 percent requirement since so many facilities are covered under general permits, and the general permits with the most recipient holders are current and in-effect.

Implementation of Electronic Public Notification

A system was developed by DOW and department IT staff to complete the public notification and input process electronically via the internet and e-mail functions that originate from TEMPO. Features of the new system include:

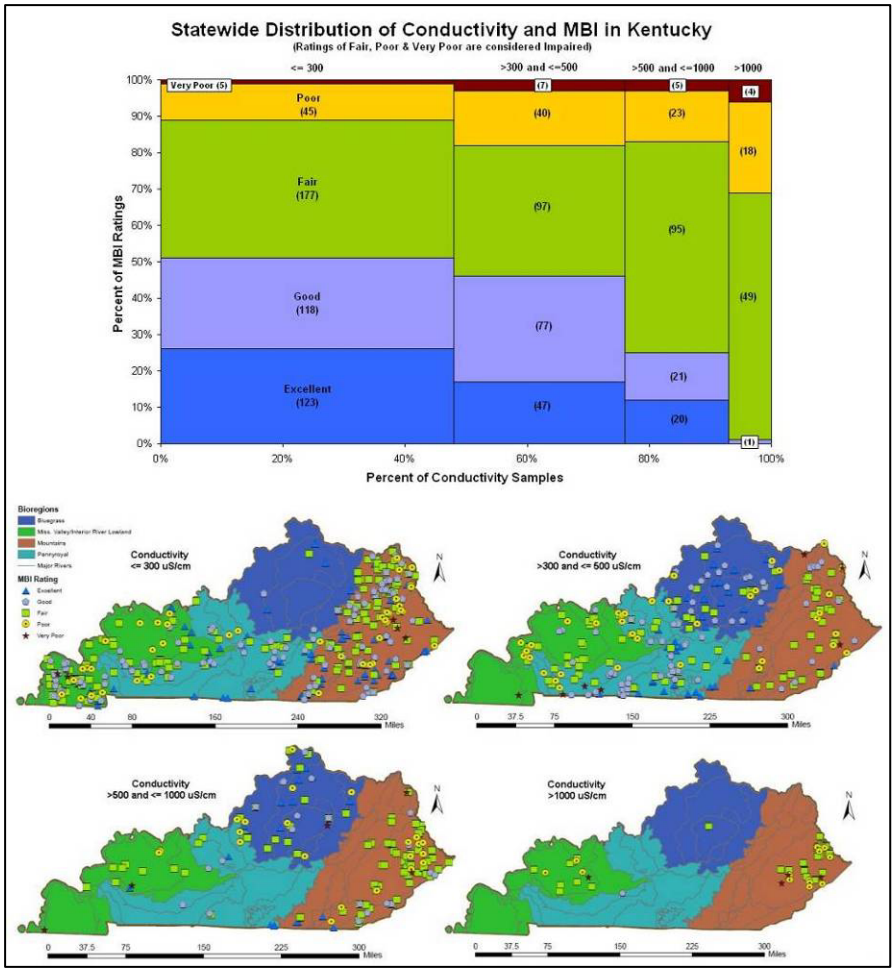
- A web-based searchable system that provides daily updates on public notice actions by DEP.
- E-mail notification to those interested parties registered on DOW's public notice distribution lists for each draft KPDES permit being publicly noticed.
- A unique e-mail address for submission of comments.

This system saves time for the division on the administrative processing of permits for public notification as well as provides a searchable index to the documents to interested parties. An additional benefit is better documentation of when USEPA and the general public receives notification of appropriate permitting actions, so that the grounds for administrative challenges can be better established. It is anticipated that there will be significant resource savings with this system over time.

Significant Technical Challenge Facing SWPB: Conductivity

On April 1, 2010 USEPA issued new "Interim Final Guidance" for Appalachian coal mining operations in six states seeking to establish new requirements in KPDES discharge permits from coal mines. Among the various guidance recommendations, the document establishes a benchmark for specific conductivity levels from coal mining operations to be between 300 and 500 µs/cm. It has been noted in two USEPA water-quality studies and to some degree in Kentucky's water-quality data that Appalachian streams with ambient water-quality conditions above this threshold exhibit impairments for the support of aquatic life. Since coal mining operations in some Appalachian areas date back before there were regulations on the industry, there is considerable variability in the conductivity ranges for streams in this region. These include streams which are well above the proposed benchmarks.

The impact to coal mining in these areas could be severely affected by the interpretation of this new guidance. Technically, it is not feasible in many instances to control the conductivity of the discharges from mining operations to the level that this guidance suggests. It is the legal questions surrounding this fact that DOW must address in the next year to make sure that both the water is safe and the citizens of the Commonwealth have a strong economy to support our way of life.



The Water Infrastructure Branch (WIB) is comprised of five sections that work together to ensure water infrastructure is properly planned, designed and operated. A brief description of each section's primary duties is provided below.

The Wastewater Planning Section is responsible for reviewing regional planning documents for municipal (public) facilities, as required by 401 KAR 5:006. Reviewers look for efficiency through regionalization and application of the best available technology with the primary focus on environmental protection and cost effectiveness.

The Drinking Water Capacity Development Section's primary role is to assess public water systems' financial, managerial and technical capacity to deliver safe water to their customers consistently and at an affordable rate.

The Dam Safety and Floodplain Compliance Section is primarily responsible for inspecting and permitting dams and providing oversight in identifying and resolving floodplain compliance issues.

The State Revolving Fund & Special Appropriation Section is primarily responsible for the administrative functions of the Clean Water and the Drinking Water State Revolving Funds and the USEPA Special Appropriation Grants.

The Engineering Section's primary role is to review the engineering design plans for water and wastewater infrastructure, and ensure their conformance with applicable regulations and ten-states engineering standards.

WIB had another successful year. We achieved most of our goals with fewer staff. At the same time, we expanded our efforts in providing technical assistance to the regulated public through education and outreach activities.

WIB continues to manage its programs and resources effectively. For the second consecutive year, the Engineering Section has finished the year with no permit backlog. Facility plans were reviewed and approved promptly. Sanitary surveys for public water systems were completed on time. The State Revolving Section made sure all the American Recovery and Reinvestment Act of 2009 (ARRA) stimulus money was committed to projects by the deadline. The Dam Safety Section managed to reduce the number of pending floodplain compliance cases from 350 to approximately 55.

WIB is collaborating with KIA to make better use of the information and data collected during the drinking water sanitary surveys.

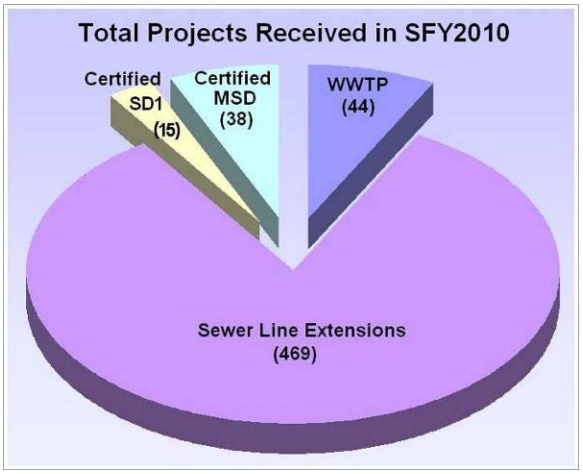
WIB continues to assess staffing needs and make the necessary adjustments to ensure permitting actions and approvals are completed within the regulatory timeframe. Through this careful staff planning and managing exercise, WIB was able to identify opportunities to share some review engineers with the Surface Water Permit Branch to assist that branch in reducing their permit backlog.

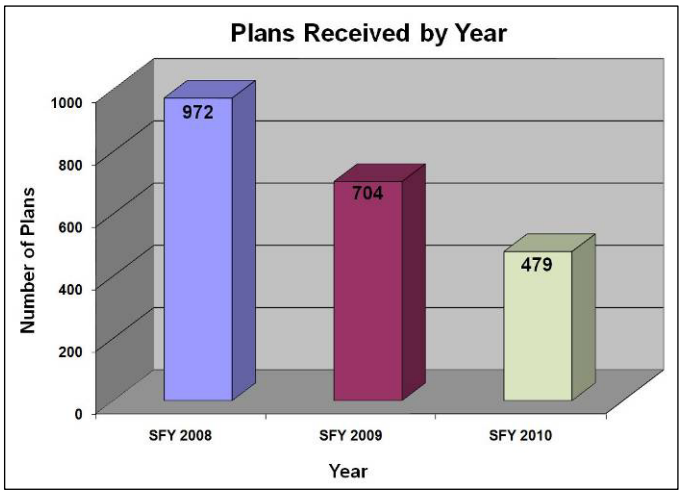
The cross-training efforts that started two years ago are continuing. More engineers are being cross-trained to review drinking water and wastewater projects; also, WIB had two review engineers get cross-training on review of floodplain compliance

cases to assist the dam safety section in reducing the pending log of floodplain compliance cases.

WIB has revised the drinking water infrastructure design regulations to incorporate the latest developments in design and construction standards and to strengthen public protection (see page 6 for regulation details). WIB is revising the wastewater planning regulation to streamline the planning process and reduce the cost of complying with the planning requirement, while ensuring public and environmental protection.

Despite the branch's achievements, however, some challenges remain. The Dam Safety Section is behind on dam inspections. The three members of the section cannot handle the section's increasing workload. The section is almost fully funded by general funds. In these difficult economic conditions, it is impossible to add employees to programs that rely on general funds to meet their staffing needs. The division will carefully evaluate the section's roles and responsibilities and explore creative alternatives to improve its overall performance by next year





Engineering Section

The Engineering Section had another outstanding year! For the second consecutive year, the section finished the year with no permit backlog. The section received 469 clean water projects in 2010, compared to 521 in 2009, and 470 drinking water projects in 2010 compared to 704 in 2009. All projects were reviewed and processed within the 45-days regulatory time frame. The decline in the number of projects received can be attributed to the difficult economic conditions, as most of our work is directly proportional to the health of the construction market.

The section continued to hold cross-training sessions. All the engineers have been cross-trained to review water and wastewater line projects. Also, most of the engineers have started to review the more complex water treatment projects.

The section has revised the drinking water infrastructure design regulations to incorporate the latest developments in design and construction standards and to strengthen public protection.

State Revolving Funds and Special Appropriation Projects Section

The SRF and SPAP Section assisted KIA program administrators in committing approximately $70 million in ARRA stimulus funds to drinking water and clean water projects by the deadline. The Section continues to properly manage more than 170 active SRF and SPAP projects. Demand for SRF funds is still strong as communities with aging infrastructure continue to seek low interest loans from the state revolving funds to make necessary upgrades.

Wastewater Municipal Planning Section

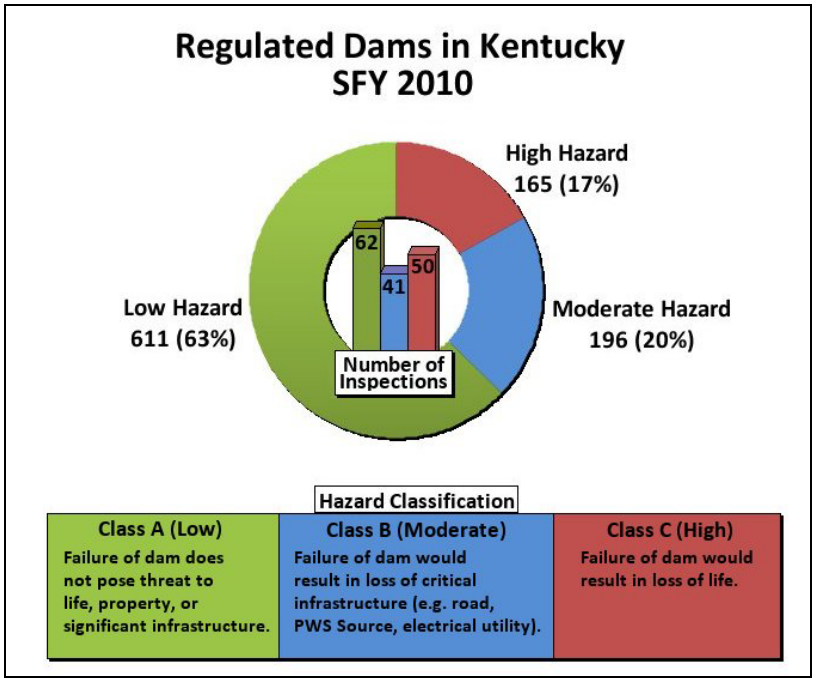
The Wastewater Municipal Planning Section reviewed and approved 16 facility plans and prepared environmental assessments for 37 projects receiving ARRA funds and 4 projects receiving SRF low interest loans.

The Section visited two thirds of the Area Development Districts and presented material to promote the sustainable infrastructure initiative, which aims to change the way utilities invest and manage their infrastructure.

The Section is working with RPPS to revise the wastewater planning regulation to streamline the planning process and reduce the cost of complying with the planning requirement, while ensuring public and environmental protection (see page 6 for regulation details). In addition, the SRF project priority ranking system was revised to give weight to green infrastructure projects.

Dam Safety and Floodplain Compliance Section

The Dam Safety and Floodplain Compliance Section is primarily responsible for inspecting and permitting of dams and providing oversight in identifying and resolving floodplain compliance issues. Staff inspect between 200 and 300 dams per



year. In the last annual report the backlog of unresolved cases had dropped from 300 to just fewer than 140. Since then, the backlog of unresolved cases has dropped to 52 with the assistance of two engineers from the Engineering Section and the full Dam Safety staff.

DOW is working with FEMA and Kentucky Emergency Management to expedite spending State-Owned Dam Repair (SODR) program funds and leveraging federal FEMA mitigation funds to address other high-hazard dam upgrades or mitigation activities needed in Kentucky where substantial benefit/cost ratios can be demonstrated.

Due to the limited number of engineers in the section, all dam safety issues are not being satisfactorily addressed. Since 2008 the number of dam inspections has been steadily declining. The backlog of dam inspections has increased and is proportional with the decrease in engineers who perform the inspections.

The division will carefully evaluate the section's role and responsibilities over the next year and explore creative alternatives to improve its overall performance.

Capacity Development Section

The Capacity Development (CD) Section promotes Sustainable Infrastructure (SI) every time they perform a Sanitary Survey (SS) of a water system (117 during SFY 2010) and during every presentation they give on the Capacity Development Program. Tools for SI developed by CD personnel during this fiscal year include the "Water Loss Reporter" (a water loss and cost to produce water calculation spreadsheet), and an informative compact disc containing various documents, tools and Web links, which will be provided to systems at the time of their SS. Also, the Public Service Commission (PSC) is using the section's Water Loss Reporter as its official means for tracking public water systems' water loss.

CD personnel have also presented information on SI via presentations at meetings hosted by Kentucky Rural Water Association, Kentucky Public Service Commission, Kentucky Association of Counties, and the Rural Community Assistance Program. These presentations typically included information on Asset Management, Capital Improvement Planning and Water Loss Tracking.

CD personnel have worked with the SRF Coordinator to revise Kentucky's prioritization formula, integrating SI and Green Infrastructure concepts.

Kentucky's Drinking Water Capacity Development Annual Implementation Report was submitted to USEPA as required and on-time. In February 2010, USEPA responded:

> *"From the report, it is clear that revitalization of KDEP's capacity development program continues at an aggressive pace. ...other highlights for us are the work your staff did with partner organizations in creating the "Water Loss Reporter" tool…and plans for modifying how KDEP collects SS information so that you can better identify trends and needs"*

CD personnel continue to work with KIA and ADD to tap the useful data and information our project managers gather during their sanitary surveys.

During the past two years CD has been drafting new regulations for Kentucky's Capacity Development Program. Drafting of the final proposed regulation by the DOW Regulation Coordinator is underway, and CD anticipates discussing the specifics with DOW management in the coming months.

One hundred seventeen (117) SSs were conducted during SFY 2010. All occurred within the month scheduled, as required by USEPA.

The CD Section is partnering with the Rural Community Assistance Program to develop a program to utilize SRF set-aside funds for systems to correct these deficiencies. CD anticipates a first call for applications to occur in late Fall 2010.

For FFY 2010 the CD Section and the Compliance and Technical Assistance Branch plans to perform 32 sanitary surveys of groundwater systems serving populations of 100 or less, in addition to the 116 surface water and related purchasing systems already scheduled for SSs during the same time period. These small groundwater systems are presented with their own unique challenges, and DOW is evaluating the best approach to use.

Breathitt County Water District

The city of Jackson serves approximately 9,015 customers: 7,700 in Jackson proper and 1,315 with Breathitt County Water District (BCWD), with about 2,800 connections. Jackson produces an average of 1.3 million gallons of potable water each day for its customers and local commerce, and is the sole water supplier for BCWD. Currently, only 35% of Breathitt County is served, making it one of the most under-served counties for potable water in Kentucky. Through multiple founding sources available to BCWD, they are installing infrastructure to supply drinking water to residents throughout the county.

Jackson withdraws raw water from the North Fork of the Kentucky River. During heavy rains, Jackson experiences difficulty getting raw water into the treatment plant because increased dirt and debris plug the water intake. This chronic water intake problem prevents the city from producing enough water to meet its customers' needs, thus creating water shortages. Four to five hundred customers have run out of water or been placed on boil water advisories during extended rain events. This has occurred four times in four years.

It was also discovered that there was a leak from a water main located under the river, which exacerbated the potable water supply problem. So far, BCWD has remained unaffected by Jackson's intake problem because they fill their storage tanks prior to an anticipated rain event, but this will change as demand increases with community growth.

To add to Jackson's problems, reluctance by the City to raise rates for many years had far reaching financial consequences. Jackson lacked financial capacity to finance and fund expensive capital projects. The incumbent mayor, who was not seeking re-election, initiated a politically unpopular rate hike to improve Jackson's financial situation; this was not enough to fully improve the credit worthiness of the city.

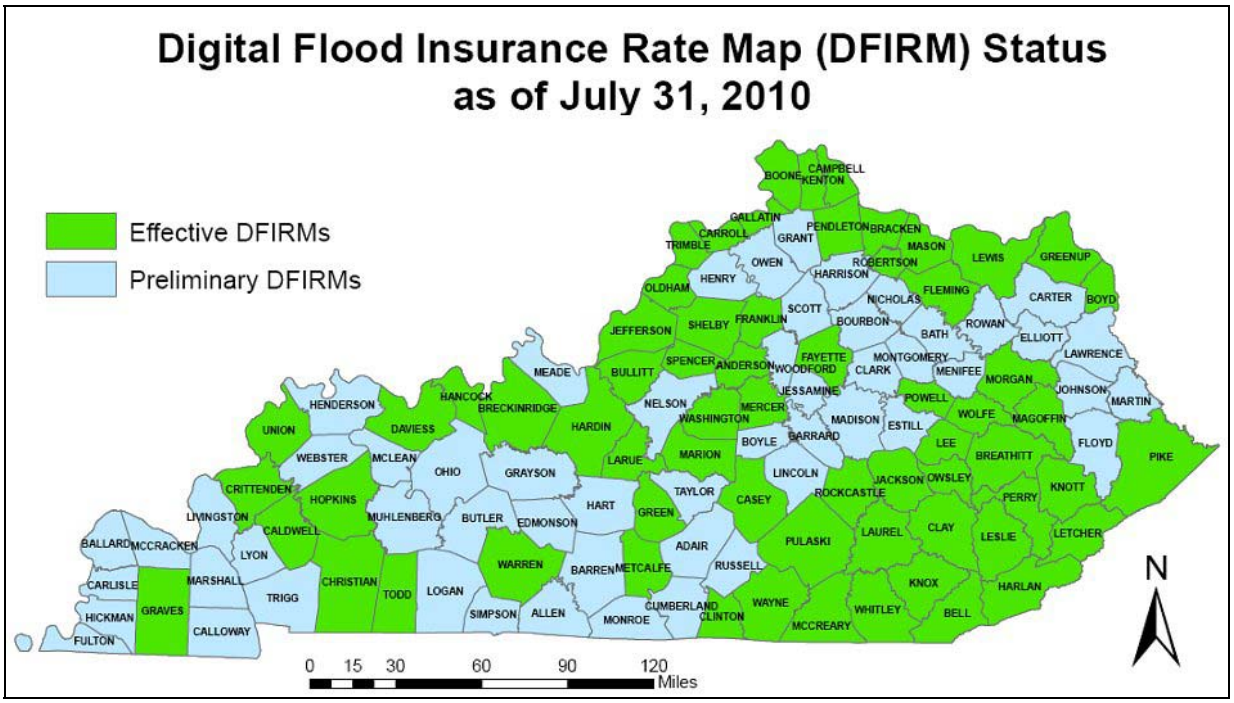
To improve the situation, the Capacity Development Section worked cooperatively with BCWD and the City of Jackson to illustrate the mutual need for a modified intake process. This effort helped secure American Recovery and Reinvestment (ARRA) money to implement a grit removal process for the raw water intake: this would reduce the negative effects caused by debris in the river. As of July 2010, the construction for the grit removal was well underway with an anticipated completion date of August 2010. We look forward to seeing the results of this project and its effect on Jackson's raw water quality, the reliability of Jackson's water service and the water service to BCWD. Additionally, the river crossing leak was fixed with the ARRA money.

The Watershed Management Branch (WMB) coordinates the implementation of the watershed framework and watershed basin planning, implements groundwater management programs, administers the water withdrawal permitting program and coordinates the development of GIS and quality assurance resources to meet the needs of the Division. Each section within the branch (GIS and Data Analysis, Groundwater, Nonpoint Source and Basin Team and Water Quantity Management) brings a diverse collection of DOW initiatives and outreach. Branch skills include integrated knowledge of water systems, ecosystems and public policy.

Map Modernization Program

The Map Modernization (Map Mod) Program has completed digital flood hazard mapping of all 120 counties statewide.

Over the 5-year life of the program (FFY 2004 – FFY 2008), DOW coordinated with federal, state, and local stakeholders to incorporate all best available data and identify flood hazards on streams with at least a one square mile watershed area in most counties. Due to varying schedules of mapping activities and inputs during due process phases, the Digital Flood Insurance Rate Maps (DFIRMs) are effective (community adopted) in 65 counties and preliminary in 55 counties as of July 31, 2010. As part of the FFY 2009 transition from Map Mod to Risk MAP, DOW is further updating the DFIRMs in 15 counties that already have effective maps.

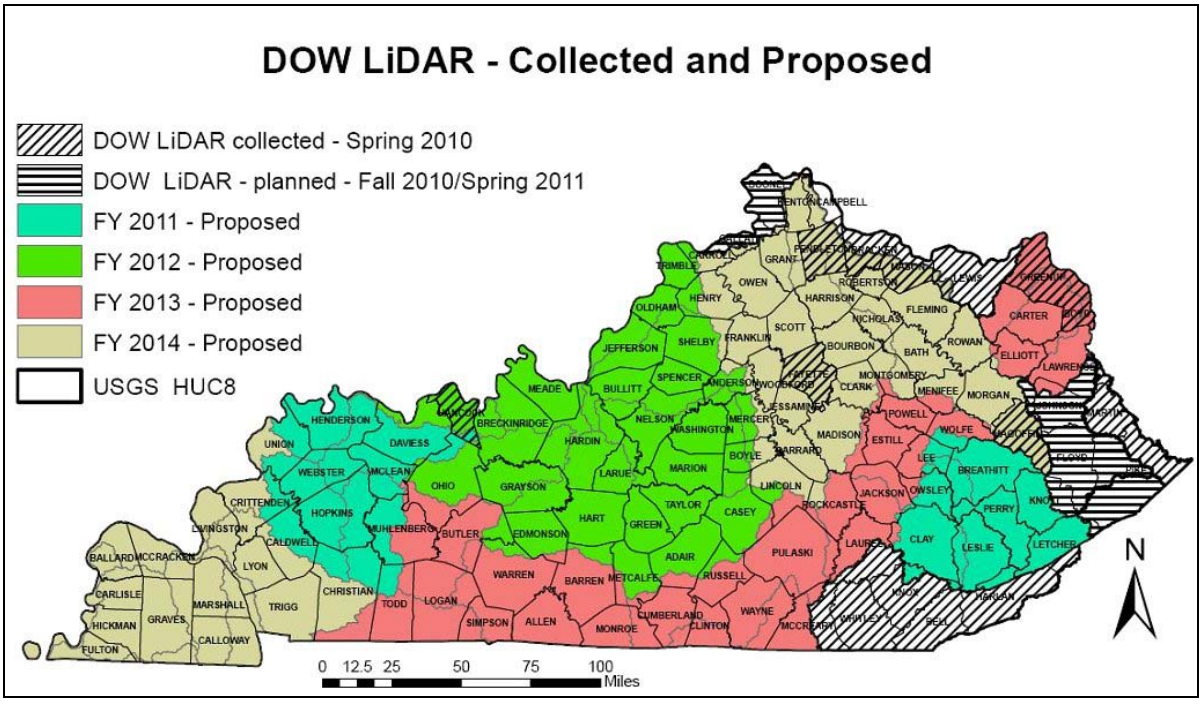


Risk MAP

To build on the success of the Map Mod effort, FEMA is collaborating with DOW and other Federal, State, and local community stakeholders to achieve the Risk MAP goals summarized below:

- Flood Hazard Data: Address gaps in flood hazard data to form a solid foundation for risk assessment, floodplain management, and actuarial soundness of the National Flood Insurance Program (NFIP).
- Public Awareness/Outreach: Ensure that a measurable increase of the public's awareness and understanding of risk results in a measurable reduction of current and future vulnerability.
- Hazard Mitigation Planning: Lead and support state and local communities to effectively engage in risk-based mitigation planning, resulting in sustainable actions that reduce or eliminate risks to life and property from natural hazards.
- Enhanced Digital Platform: Provide an enhanced digital platform that improves management of Risk MAP, stewards information produced during Risk MAP, and improves communication and sharing of risk data and related products to all levels of government and the public.
- Alignment and Synergies: Align Risk Analysis programs and develop synergies to enhance decision-making capabilities through effective risk communication and management.

One of the cornerstones to achieving Risk MAP goals is utilizing high resolution topographic information for engineering analyses and flood risk mapping. DOW has collected light detection and ranging (LiDAR) data in nine counties and two United States Geological Survey (USGS) HUC-8 watersheds (Upper Cumberland and Tug Fork).



DOW contractors will be collecting LiDAR in the Upper Levisa, Lower Levisa and Middle Ohio-Laughery watersheds in Fall 2010/Spring 2011. DOW is collaborating with other agencies at the federal, state, and local levels to achieve a statewide LiDAR dataset.

The products derived from Risk MAP activities will serve to improve on existing engineering studies, identify risks from natural hazards (particularly flooding), create risk assessment datasets that will help local communities manage natural hazards, and increase natural hazards awareness through outreach and education programs.

Groundwater Section

Certified Well Driller's Program

The Groundwater (GW) Section conducted training at the 2010 annual water well drillers workshop on the revised 2008 Water Well Driller Certification Program regulations. GW certified 130 drillers; 30 were new and approximately 35 drillers did not recertify during the 2009/2010 certification period. A draft statute to establish the regulation of closed loop geothermal boreholes was developed with the Kentucky Water Well Driller Certification Board and provided to the Cabinet for consideration.

Groundwater Monitoring

GW collected 111 samples for the Ambient Monitoring Network, 16 samples for the Pesticide Memorandum of Agreement (MOA), 28 samples from one-time sites, and responded to numerous citizen complaints. The GW Section submitted the final report for the "Assessment of Nonpoint Source Impacts on Groundwater Quality in South Elkhorn Creek Basin, Central Kentucky" (NPS 0204). GW continued field investigation for the West Pennyrile Karst study (NPS 0704), currently focused on aquifer mapping. The grant was approved and work is scheduled to begin on a statewide NPS study titled "An Assessment of Pathogens in Groundwater in Kentucky".

Special Projects

The GW Section reviewed a variety of different projects for potential adverse affects on groundwater. One hundred and seventy four (174) Federal Assistance Reviews were completed through the e-Clearinghouse review system. The State Environmental Review process resulted in eight Environmental Impact Statements and Environmental Reviews being sent to GW for evaluation and comment. The United States Army Corps of Engineers (USACE) sent 53 404/401 related projects for review and comment as well.

Groundwater Protection Plan (GPP) Program

The GPP Program has three active Notices of Violation against facilities for failure to submit GPPs, which will possibly result in assessment of fines. All GPPs required by DENF are reviewed on a high priority basis.

The GPP program has developed a draft standard operating procedure (SOP) for conducting site visits for compliance with 401 KAR 5:037. An Inspection Check Sheet and Informational Sheet have been developed as part of the SOP.

The GPP Program conducted 14 Compliance site visits, all of which resulted in calling in new or updated plans for the facilities visited. On request, program staff will visit a facility to provide assistance with developing the GPP. Such a visit was conducted at the Blue Grass Army Depot in Richmond. Staff frequently provide assistance with GPPs over the telephone.

The GPP Program continues to focus on providing training through presentations and forums within various state agencies, especially those having direct contact with the public, to raise awareness of this program.

The GW Section provided technical assistance to various agencies and private individuals, such as conducting a field investigation for the Pipeline Cave sewage release for the City of Frankfort. GW performed several well inspections and responded to information inquiries and complaints.

Water Quantity Management Section

The Water Quantity Management Section is charged with administering the sections of KRS 151, KRS 224A and 401 KAR 4:220 pertaining to water withdrawal permitting, water supply planning, and drought. All three of these programs serve to fulfill the water resources policy set forth in KRS 151.110. Briefly stated, the intent of this policy is to maximize the conservation and beneficial use of water; prevent flooding; maintain the normal flow of all streams; regulate reasonably the amount of withdrawal of public waters; and provide planning of regionalization, consolidation and partnerships among governmental agencies and private parties.

Water Withdrawal Program

The Water Withdrawal Permitting program oversees all withdrawals in the state that average >10,000 gallons per day, with the exception of water required for domestic and agricultural purposes, and for steam-powered electricity generating plants. There are 704 active water withdrawal permits. Permit holders are required to keep records of daily water use and report the information to DOW on a monthly basis.

Water withdrawal permitting actions FY 2010

Application Type	Received	Issued
New Permits	18	15
Revised Permits	24	17
Temporary Authorizations	5	4
Water Diversions	1	1
Interim Authorizations	1	1
Permit Inactivations	11	10
Total Permit Actions	**60**	**48**

DOW has regulated water withdrawals since 1967 through a water withdrawal permitting and reporting program. For SFY 2010 a total of 4,390 million gallons per day (MGD), including thermoelectric power generation, were reported withdrawn from the major water use sectors in Kentucky. The largest changes in withdrawals from the previous year were reported for aquaculture (up 39 percent), commercial use (up 125 percent) and mining (up 27 percent). Water withdrawn for thermoelectric power generation decreased by seven percent in SFY 2010.

Reported water withdrawals and changes from the previous year for each major water use sector

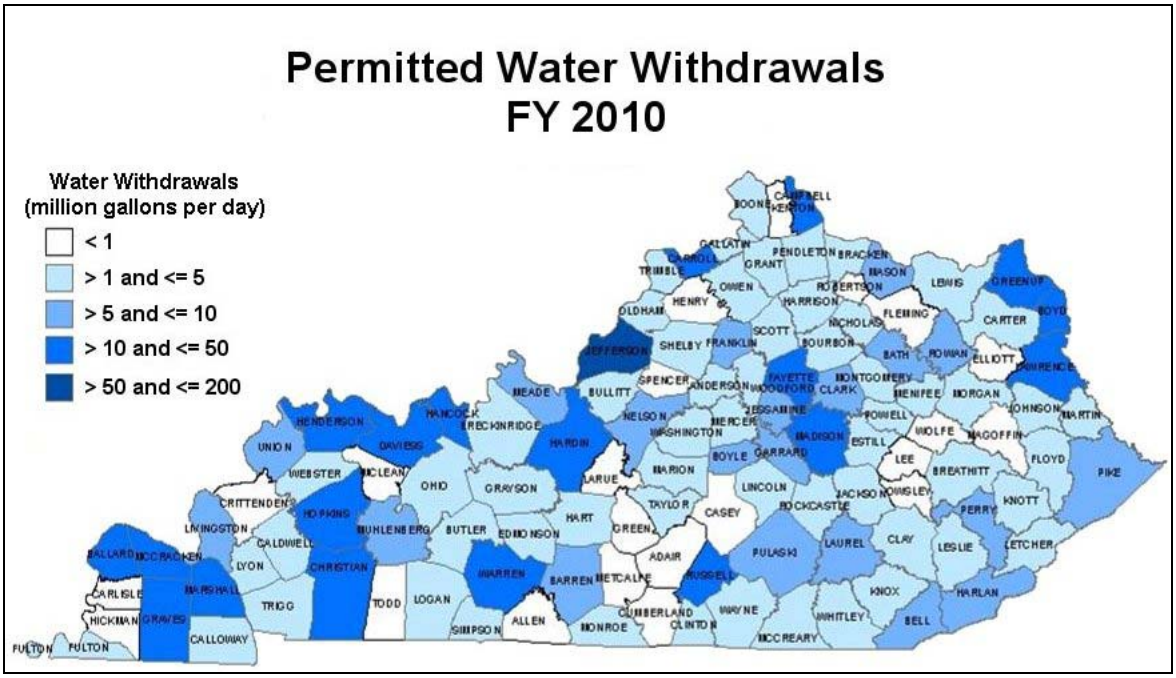
Water Use Sector	Average Daily Withdrawal		Percent Change
	2009-2010	2008-2009	
	MGD		
Aquaculture	18	13	39
Commercial	34	16	125
Mining	38	30	27
Industrial	261	243	7
Public Water Supply	575	575	0
Thermoelectric Power	3465	3733	-7
Total	**4390**	**4610**	**-5**

Reported water withdrawals and changes from the previous year for each type of water source			
Water Source	**Average Daily Withdrawal**		**Percent Change**
	2009-2010	**2008-2009**	
	MGD		
USACE Reservoir	41.7	40.3	3.5
Wells and Springs	193.2	170.4	13.4
Lakes and Ponds	116.8	110.9	5.3
Rivers and Streams	566.4	553.6	1.3
Underground Mines	1.6	1.2	33.3
Total	**920**	**876**	**5**

A total of 920 MGD were withdrawn for uses that are regulated by DOW. Of these, surface water (rivers, streams, lakes and ponds) accounted for nearly 79 percent of the total water withdrawn in Kentucky. Total water withdrawals from regulated sources (920 MGD) were up 5 percent over the previous year (876 MGD).

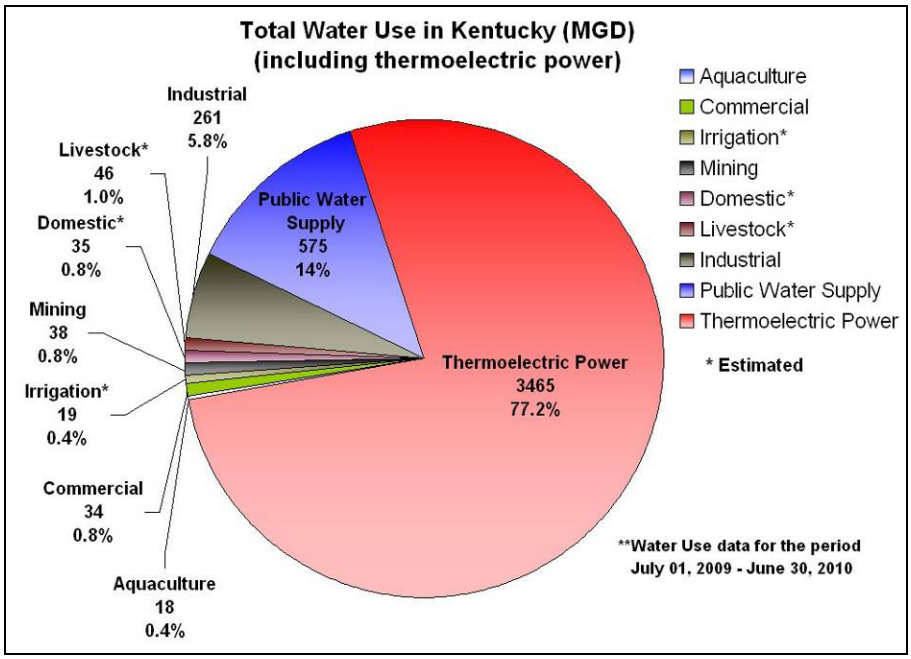
Water withdrawal permitting actions were related primarily to the issuance of new permits and making modifications and revisions to existing permits. Other permitting actions included the issuance of emergency authorizations (short-term authorizations to withdraw due to an emergency) and temporary authorizations (short-term authorizations related to projects that require a limited-duration use of water).

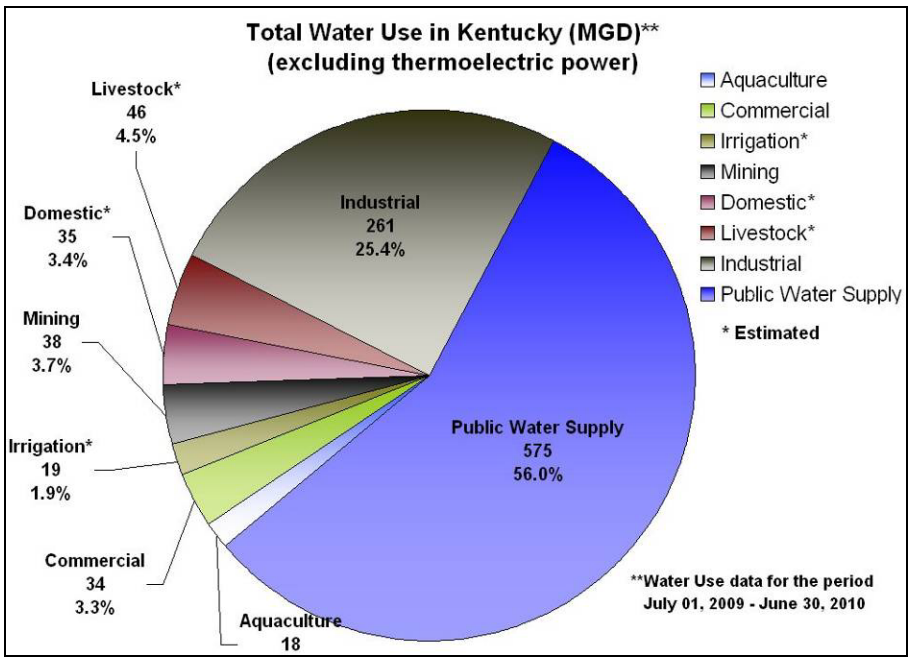
A majority of counties in Kentucky reported average daily withdrawals less than 5.0 MGD for SFY 2010. Counties with average daily withdrawals above 10.0 MGD were generally associated with larger population centers or large industrial water demands. The sources for these large withdrawals are primarily located in the Ohio River and its alluvium or from direct or indirect use of water that is stored and released from USACE reservoirs.



Water Use

Water used for purposes of generating thermoelectric power accounted for 77 percent of the total water withdrawn in Kentucky for SFY 2010. A majority of the water used for power generation is not consumed; it is used primarily for cooling purposes and then returned to the source. When thermoelectric power generation is excluded, public water supply and industrial water use together accounted for 81 percent of the total water withdrawn in Kentucky.



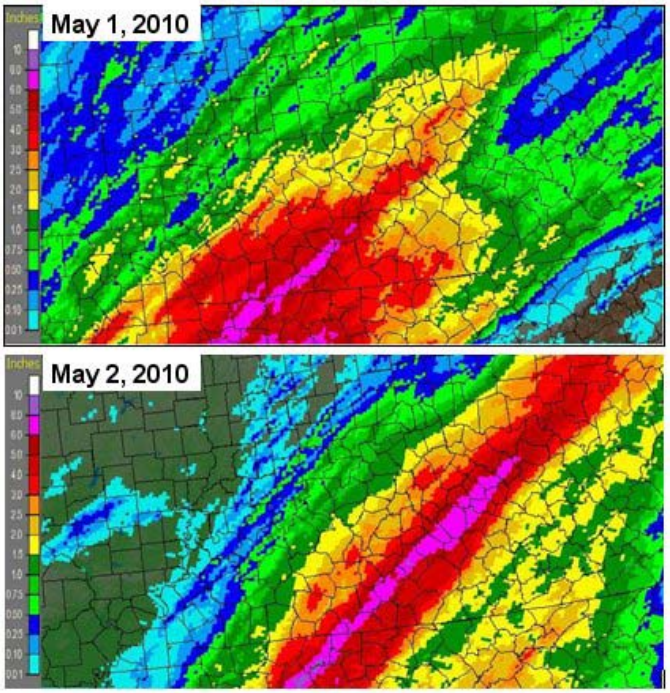


Flooding

The first two days of May 2010 brought a historic rain event to a large portion of the Commonwealth. While most of Kentucky was spared from the level of destruction that was seen in the Nashville area, there was still widespread flood damage in many parts of the Commonwealth.

As much as 10 inches of rain fell in places along the Tennessee border in south-central Kentucky, and an axis of 6 to 8 inches stretched from Bowling Green to Morehead. This heavy rain resulted in a large number of problems, including flash flooding, river flooding, mud slides, road washouts, and dam failures.

Some of the hardest hit communities included Clay City and Liberty; both towns were almost completely inundated at the height of the flooding. Flash flooding in small streams and urban areas gave way to floods on the larger rivers. Both the Kentucky and Green Rivers reached "major flood" levels. The city of Frankfort was hit hard by the flooding as many homes and roadways were overtaken by the Kentucky River. Even DOW's parking lot fell victim to the rising waters.



Observed Daily Rainfall

National Weather Service's
Advanced Hydrologic Prediction Service
(http://water.weather.gov)

Wellhead Protection Program

Wellhead protection is the prevention of groundwater contamination through management of potential contaminant sources within the delineated recharge area of a water supply well or spring. Kentucky's Wellhead Protection Program (WHPP) was originally approved by USEPA in 1993, with modifications approved in 2001, and is coordinated by DOW under the Water Supply Planning Regulation KAR 401 4:220. There are currently 169 active systems: 96 community, 34 non-transient /non-community, and 39 non-transient/community.

WHPP incurred a 100 percent turnover of staff by the end of 2008. WHPP continues to update the wellhead protection areas (WHPAs) in the GIS system as new wells are brought on line and old wells are closed. The delineated WHPAs are also being updated to reflect changes in delineation methods. WHPP is also incorporating information from the contaminant source inventories into their GIS coverage.

WHPP Reviews Completed FY 2010			
	Phase I	Phase II	5-Year
Reviewed	0	0	9
Approved	0	0	9
Developed	0	0	6

Additionally, WHPP staff members engaged in two GUDI (Groundwater Under the Direct Influence of surface water) determinations and four site visits.

GIS and Data Analysis Section

The GIS & Data Analysis Section (GDA) consists of seven employees: five staff positions, one position on loan to the Risk MAP program and one supervisor.

Staff represent various backgrounds in hydrogeology, biology, statistics, computer programming and technical data management. The section's goals are to provide support and programmatic direction to the division in the following areas, listed below.

Database Management

Division Water Database

GDA is working in concert with RPPS IT Section on the new division water quality database, K-WADE. GAP analysis sessions with a contracted vendor will commence in Fall 2010 to adapt software from ALA-WADR (Alabama Water-Quality Assessment and Monitoring Data Repository) into K-WADE. Preparatory work toward this stage of the project included securing funding, comparing a list of needs to a list of capabilities, and determining all individual databases maintained within DOW that contained water-quality data to migrate into K-WADE.

Assessment Database (ADB)

GDA assisted with ADB functionality and trouble-shooting to accomplish required USEPA reporting on water-quality assessments for surface water.

Ecological Data Application System (EDAS)

GDA is working closely with RPPS IT to migrate data from EDAS to K-WADE.

Groundwater Database (GWDB)

GDA continues to maintain and manage all groundwater data in electronic format. Staff coordinated regular exchange of data with Kentucky Geological Survey (KGS) to publish all groundwater data on the Web.

Tools for Environmental Management and Protection Organizations Database (TEMPO)

The GDA supervisor has administrative duties for TEMPO and assisted both the GW Section and the division in functional and reporting issues.

GIS (Geographic Information Systems)

GDA continued to facilitate the DOW GIS workgroup and "It's GIS Lunch." GDA also continued the GIS 101 training and developed GIS 201. Thirteen attended GIS 101 in September and at least three people have completed the GIS 101 Self Study available on the intranet. GIS 201 classes began in March and 38 DOW employees have completed this course. Topics covered include ArcCatalog, selecting features, clipping, digitizing, labeling tools and features, working with and importing tables and using definition queries.

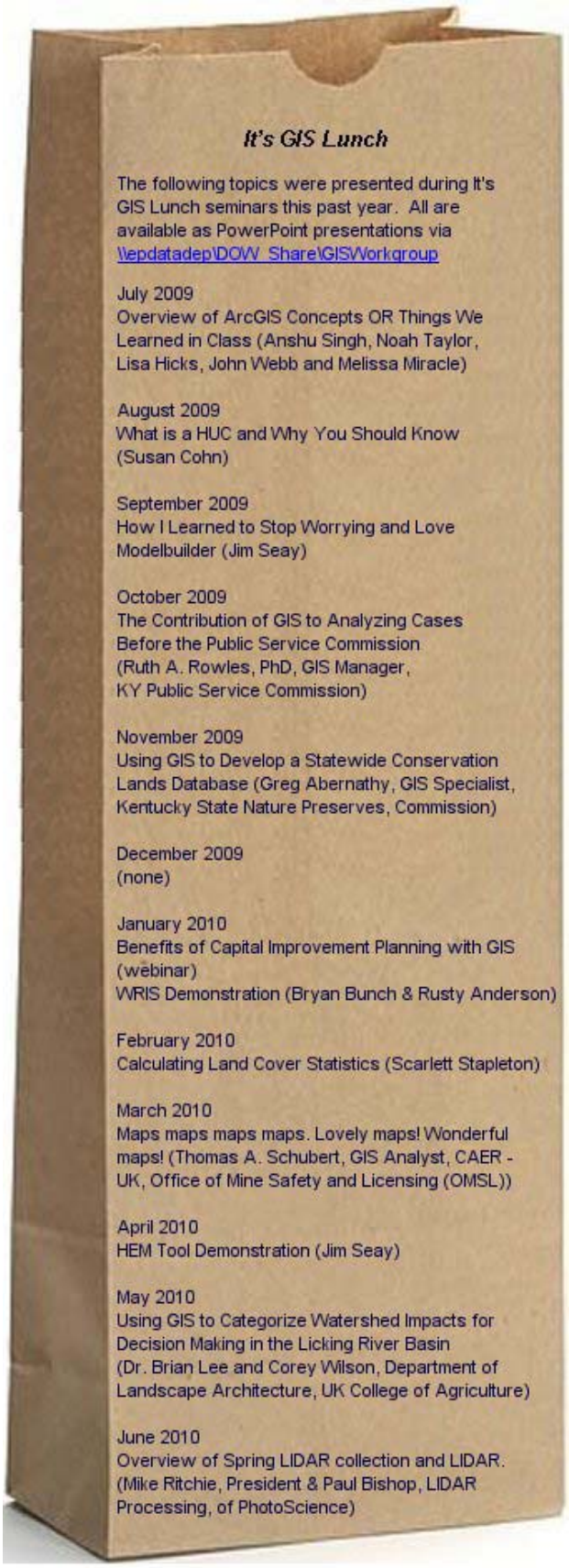
Evaluations for GIS 201 generally were positive, with an overall mean rating of 3.8 out of 5. The GIS workgroup considered these internal training courses very successful and will continue to offer 201 as needed.

Other initiatives by the DOW GIS Workgroup:

- WRIS/DOW liaison workgroup
- Discussion of long-term GIS initiatives at DOW
- Pushed cabinet to upgrade to ArcMap 9.3.1 and catch up to rest of state government
- Initiated Open Lab on Thursdays to allow any DOW employee to walk into the DEP computer lab, log onto their own project and discuss issues or ask for help. These have been slow to start.
- Inter-branch assistance of mapping projects requested through the GDA Help Desk

NHD Stewardship

GDA and GW staff worked together to secure a grant from the USGS for a project to integrate Karst Atlas data into the National Hydrography Dataset (NHD). GDA is digitizing dye-traced and cave-surveyed karst flow routes in the West Fork of Red River basin (the pilot study area) for incorporation into the NHD. GDA staff also conducted general NHD maintenance (finding and fixing gaps and/or branched streams) in several HUC 8 sub-basins, that have been updated in the USGS National Map. In addition to general NHD maintenance, storm water pipelines and drainage ditches were incorporated into several sub-basins from GIS data provided by the Wet Weather Section of SWPB, including the MS4 program. Finally, additional NHD maintenance made on several sub-basins has been submitted to USGS, but is still in QA review.



Well Record Review

GDA staff are responsible for the receipt, review, and processing of all monitoring and water well records. GDA received records for 186 water wells, 823 monitoring wells, and 35 springs throughout SFY 2010. Staff eliminated an accumulation of plugging records dating back six years. Plugging records currently received are processed within one week of receipt. Additionally, all monitoring well records received between 2005 and March 2009 have now been processed, with the GW Section providing processing support.

Online Submittal Development

GDA continued work toward identifying and converting processes eligible for online electronic submittal. Starting April 5, 2010, drillers were able to electronically submit well records using the eForm version of the Uniform Kentucky Well Construction Record via a link on the Well Drillers Program webpage. Instructions and tips for using the eForm were also provided from a link on that same page. The electronic version of Water Withdrawal Reporting is currently in the testing phase. Groundwater Protection Plan Online Development, Whole Effluent Toxicity Testing QA Submittal, and two additional well record eForms (Maintenance and Plugging eForm and a combined Installation/ Plugging eForm) are currently under development.

FOIA Requests

All Freedom of Information Act (FOIA) requests for well record information go through GDA. Coordination occurs between GDA and the RPPS Branch to accomplish and document all requests. GDA fulfilled 150 requests for well records and/or locational information, 13 requests for groundwater quality information and six requests for maps (from outside DEP).

Map Modernization Program

GDA assisted the Map Modernization Program by developing an SOP for the map modernization outreach program. GDA attended multiple county meetings on the flood mapping management program and created tutorials for using the mapping Web site.

Division Web Page Development and Maintenance

GDA staff have editor duties for all Division Web pages and are responsible for revising web pages as requested by any Division staff, re-designing several pages to make them more accessible to the public, attending SharePoint training for transition to a new Web management system, and responding to public inquiries through the main information Web page link.

Quality Assurance Program

GDA is responsible for the Quality Assurance (QA) program within DOW and cooperation with DEP for overall quality assurance planning. In SFY 2010, GDA reviewed and revised the quality management plan; reviewed and approved 12 water quality QAPPs; developed a QAPP template for use in coal permitting; reviewed 21 QAPPs related to coal mining; reviewed and approved four SOPs; and participated in monthly DEP QA meetings. GDA also participated in data quality meetings with WQB and will expand the meetings to include all of the Division in the future. Additional GDA achievements in the QA program include: the development of a data validation checklist for use in monitoring projects; attendance of a USEPA annual conference on quality assurance and information

technology; and, in cooperation with USEPA, developed a bi-annual training for DEP staff.

Presentations / Public Outreach

GDA staff presented at the following conferences and meetings during FY 2010:

- KY GeoEd conference
- Well Driller's conference
- Nonpoint Source Program Initial Project Manager's Meeting
- Coal Industry Permit Meeting
- Southeastern Water Pollution Biologist's Association Conference

Special Projects

Field Activities

GDA staff regularly participate in surface and groundwater field activities, including ambient groundwater monitoring, karst identification field work, wetland identification and monitoring, surface water and biological monitoring projects and well inspections.

Integrated Report

GDA assisted WQB with the Integrated Report, reviewing 20 drinking water MORs (monthly operating reports) and 300 wastewater DMRs (discharge monitoring reports). GDA developed a crosswalk to auto-populate assessment sheets for both MORs and DMRs from electronic data extracted from corresponding databases.

Conductivity Workgroup

Several GDA members were assigned to the Conductivity Workgroup. The need for a statewide 'snapshot' of conductivity was identified by this workgroup and GDA was assigned the task of completing the analysis. Working with personnel from SWPB, analyses led to a report "Exploration of Conductivity Values in Kentucky" that was presented by WMB staff to and well-received by USEPA at an Interstate Conductivity Meeting in Nashville, TN in June 2010. This report provided "a current snapshot of conductivity and the variability of its effect on the quality of Kentucky's streams," (see page 49 for more information on this report).

Coal Permitting Workgroup

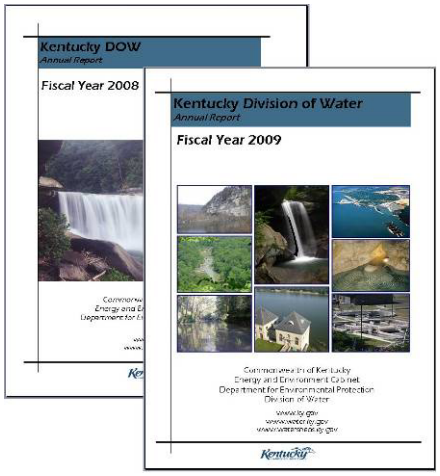
Several GDA members were also assigned to the Coal Permitting Workgroup. Within the workgroup, staff assisted in the development of a reasonable potential analysis procedure for use in coal permitting, participated in interagency meetings with Department of Natural Resources mining office on hydrology monitoring planning, and worked with permittees, laboratories and consultants to accomplish the permitting process.

Lean Initiatives

GDA staff developed a strategic plan for the GDA section accompanied by visual tracking displays and annual operational plans.

Annual Report

The GDA section is responsible for coordinating, compiling and formatting the DOW Annual Report.



Nonpoint Source and Basin Team Section

Staff from the Nonpoint Source Pollution Control Program (NPSPC), which includes personnel from the Nonpoint Source and Basin Team Coordination Section (NPSBT) and the Grants Management Section in the RPPS Branch, utilized a Value Stream Map of the Section 319(h) Sub-grantee award process to make substantive changes to the process. The Value Stream Map was generated with assistance from the Division's lean team in April 2009. A project proposal process was instituted to reduce the number of project applications being reviewed and ranked for FFY 2010 funding. Twenty-one project proposals were submitted; fourteen of these were invited to apply for funding. This resulted in a net reduction of approximately 140 personnel hours applied to the process.

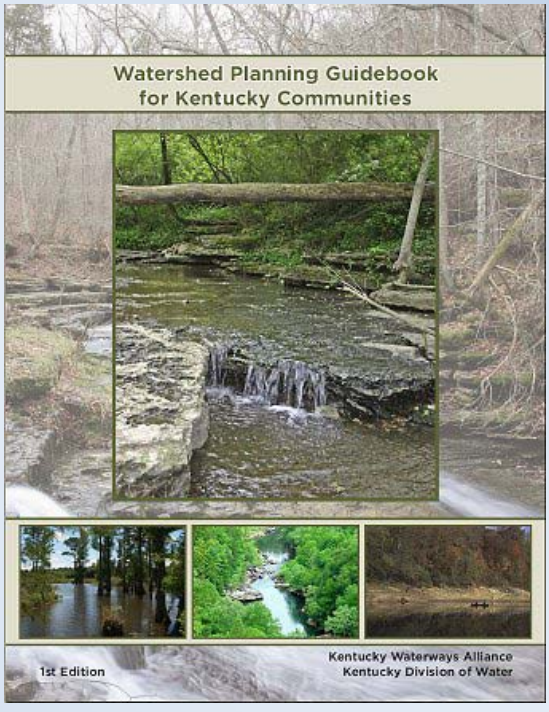
NPSBT completed testing a draft Watershed Planning Guidebook for Kentucky Communities in four pilot watersheds. A revised guidebook is in review and publication is anticipated in late 2010.

A Guidebook for Watershed Based Planning

Starting in the fall 2010, anyone interested in improving and protecting their watershed will be able to use the *Watershed Planning Guidebook for Kentucky Communities* (guidebook). The guidebook will be available in electronic format with limited print copies.

The guidebook is the end product of a USEPA 2004 Clean Water Act Section 319(h) grant project awarded to the non-profit organization Kentucky Waterways Alliance (KWA). KWA assembled the guidebook while working closely with DOW's Nonpoint Source and Basin Team Section (NPSBT).

Recognizing that the guidebook would require and benefit from practical input from anticipated users, a draft version was provided to four different watershed groups across the state. The groups used the draft as they worked to formulate watershed stakeholder organizations and conduct inventories of water quality issues and concerns. The draft was also used to assess different BMPs and ultimately develop watershed based plans for the protection and restoration of the watersheds.



The watershed groups utilizing the draft provided feedback to DOW and KWA. Taking comments from the four watershed groups into consideration, the KWA and the NPSBT returned to work. The goal for the revised guidebook was to improve upon the existing structure. The final version provides Kentuckians specific guidance and step-by-step instructions on activities such as conducting a watershed inventory and writing a watershed based plan. Additionally, the guidebook includes a section called *Watershed Basics*, an educational tool to inform users of watershed systems.

NPSBT expects the guidebook to function as a detailed manual that can be used by groups across the state to assist and help solve their unique watershed planning issues.

NPSBT revised the Watershed Priority Formula. Nine Watershed Plans were received: seven were accepted, including Banklick Creek, Clark's River, Dix River (Clark's Run and Hanging Fork), Dry Creek, Hancock Creek and Stockton Creek, and two were rejected. There are currently seven Watershed Plans under development.

The NPSBT Section has worked diligently to close out the remaining FFY 2002 Grant year projects prior to the grant closure date. Nineteen of the twenty projects in this grant year were closed by the June 30, 2010 grant closure date.

The NPSPC Program received the FFY 2009 Grant Award of $3.3 million to implement the program. A total of six sub-grantee projects were selected for funding through the review and ranking process, and a seventh was funded through a re-obligation of funds from a failed FFY 2007 project. All six projects have executed contracts and have begun work.

NPSPC Program staff applied for FFY 2010 grant year funding in September 2009. Sub-grantee projects for the FFY 2010 grant have been reviewed and ranked, and final selections will be made in July 2010 with an expected project start date of December 2010.

For the Kentucky Watershed Leadership Academy, NPSBT worked on developing 32 training modules on a range of watershed topics, and completed 15 modules.

The Water Watch office is completing work on a web-accessible database for Watershed Watch volunteer and sampling site information, event tracking, and form generation for training and sampling events. The Water Watch program coordinator continues working with GAPS Information Technology staff to complete development of the database.

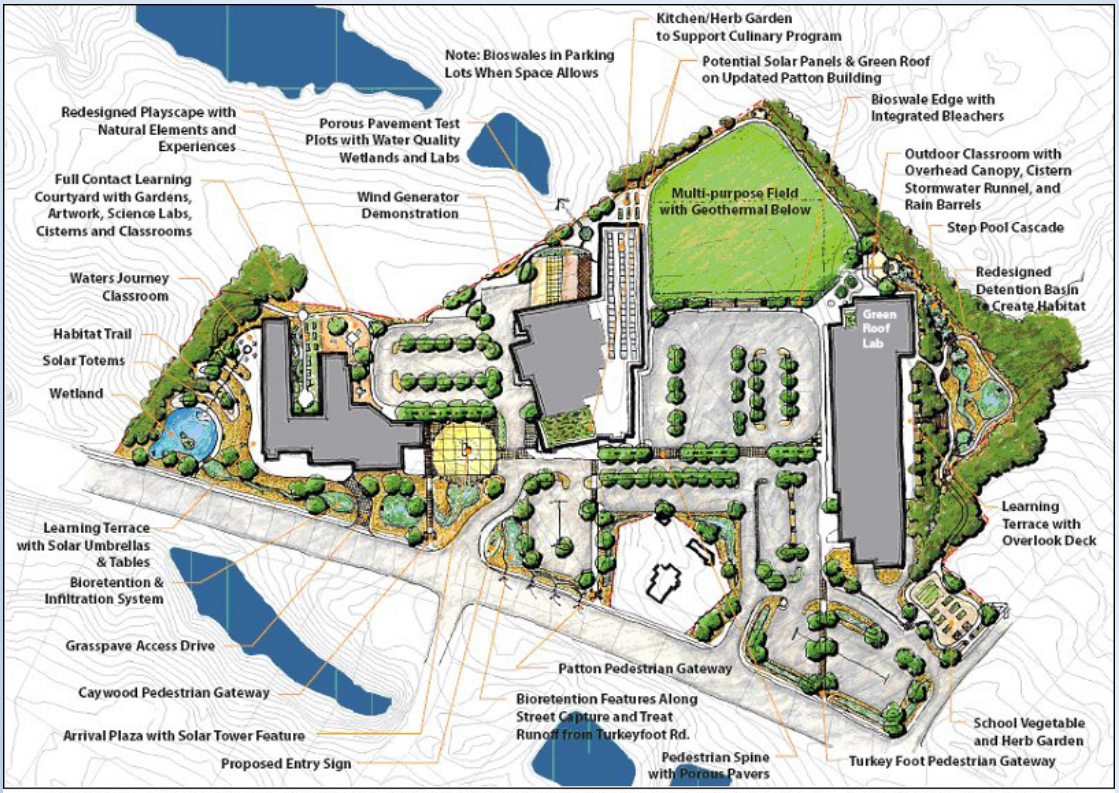
Kenton County Schools Growing Greener Every Day

Kenton County School District in Kentucky was the recipient of a 319(h) grant from USEPA and DOW to develop a green stormwater master plan for their three-school campus. Students from kindergarten through twelfth grade are taught at James A. Caywood Elementary School, Turkey Foot Middle School and J.D. Patton Area Technology Center. The campus showcases cutting-edge green technologies and serves as a national model for sustainable practices and education. Having already won various energy awards for their green building and energy practices, a conceptual plan was developed to integrate water quality, water quantity, educational and community needs throughout the 22 acre campus.

This master planning process was a tremendous success as it engaged many different groups: students and teachers throughout the district, professional engineers, university representatives, major industry leaders, community members, and employees from DOW. A 50-member visioning team was created to represent the region's top leaders in business, industry, education, and post-secondary institutions. The team identified and prioritized innovate green strategies and educational elements for incorporation into the master plan.

On field day, May 19, 2010, implementation of the newly built 0.25 acre stormwater best management practice (BMP) at the campus entry way was unveiled. The BMP features wetland filtration cells with native plantings, stormwater collection from roads/parking lots, three water quality monitoring locations, sediment traps, and a prairie of native grasses, and affords the students yet another chance to see green science in action.

Perhaps the most valuable part of the project is the unique opportunity to resonate with students of all ages. This campus goes beyond just the physical green elements, and the school district and its partners recognize the capacity to develop a future labor force capable of meeting the demand for green collar jobs over the next 20 years.



Kenton County School District Green Campus Master Plan Developed By Human Nature, Inc. and Strand Associates, Inc.
Funded by EPA 319(h) NPS Grant, administered through DOW.

Water Quality Branch

The Water Quality Branch (WQB) is a scientific based field operations agency touching every facet of the Division of Water. The Water Quality Branch is responsible for collecting, analyzing, and making scientific determinations on issues and activities that affect Kentucky's waterways. Water quality standards are developed, evaluated, and assessed through Triennial Reviews and the Integrated Report. Waters are protected through the Water Quality Certifications, Wetlands Program, Outstanding Resource Water (OSRW) designations, and the Wild River Program. The Total Maximum Daily Load (TMDL) Program develops TMDL plans for impaired waters to guide their restoration and prevent further deterioration.

Manager's Office

Personnel

WQB underwent significant changes in number of staff, which affected many programs. The branch manager position was filled. The Monitoring Section supervisor position was vacated. The Water Certification Section and Monitoring Section have vacated positions due to personnel leaving to pursue personal interests.

New staff in the Branch filled five positions. One staff resignation occurred. The Branch continues to have three empty positions.

Emergency Response Actions

Effects of emergency responses on water quality are monitored through chemistry and/or biological sampling during and after the action has occurred. WQB is involved with the emergency response team personnel and coordinates sampling plans and post-action monitoring.

Special Project Collaborations

In SFY2010, many issues came to the forefront of water quality management.

Ongoing development of numeric nutrient criteria, initial preparation and investigations into numeric criteria for selenium and mercury began. Inter-disciplinary teams were formed to discuss and strategize issues regarding maintaining water quality in the coal mining permitting process and evaluating stream conductivity analysis.

Several managerial tools were instigated in water quality management, including operational planning and lean management to more effectively communicate and accomplish the goals of the division.

Wild Rivers

Money generated from the sales of nature license plates and environmental fines are placed into the Heritage Land Conservation Fund (HLCF) which is used to purchase property for conservation. Ten percent of the HLCF is dedicated to the Wild Rivers Program for purchase of property along the nine state wild river corridors.

In October, the Heritage Land Conservation Fund Board (HLCFB) approved DOW's request to expand the Wild Rivers purchase boundaries to include any land lying within a 10-digit HUC watershed flowing adjoining a Wild River Corridor.

Hemlock Wooly Adelgid Treatment at Martins Fork

Using an allotment of pesticide provided by a United States Forest Service grant, Water Quality Branch staff treated hemlock trees infested with the hemlock wooly adelgid along the Martins Fork Wild River Corridor. In the spring of 2010, staff hiked portions of the DOW-owned Martins Fork State Natural Area protecting native hemlock trees from the invasive hemlock wooly adelgid. Treating each tree individually via soil injection of insecticide at the base of each infested tree, staff successfully treated over 700 trees in just 5 days. Adelgid suppression efforts at Martins Fork State Natural Area will continue in fall of 2010 and spring of 2011.

Since August 2009, the Wild Rivers Program has been working to purchase an additional 1800 acres of land (and seven miles of river frontage) spread throughout the Little South Fork and Green Rivers. To date, the program has closed on a 60-acre tract on the Green River with appraisals pending on three more tracts.

The Wild Rivers Program continues to manage the approximately 2,600 acres currently owned by the program. Specifically, staff began treating eastern hemlock trees on the Martins Fork State Natural Area infested with the non-native hemlock woolly adelgid. So far, nearly 1000 infested hemlocks have been individually treated (via ground injections of pesticide). Hemlock woolly adelgid treatment will continue throughout the fall of 2010.

The Wild Rivers manager conducts quarterly water quality monitoring at each Wild River in addition to periodic monitoring of high traffic areas, and conducts an annual aerial land use survey.

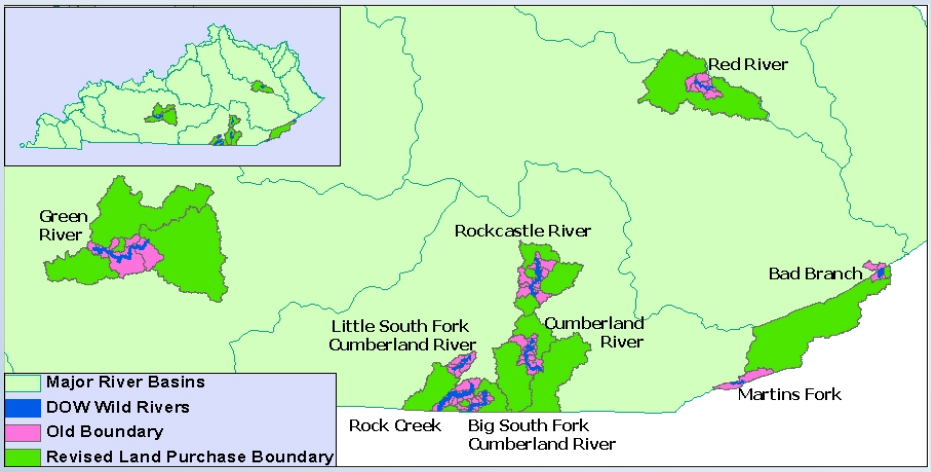
Water Quality Standards

Designated Uses

During the 2008 triennial review, 223 water body segments were added to the OSRW designated use category. These additions include special category waters under the anti-degradation policy: exceptional and exceptional-reference reach. This accomplishment provides the necessary use designation to extend regulatory protection to the streams that support examples of natural history, biodiversity and intact habitat in the Commonwealth.

Wild Rivers Purchase Area Expansion

In October 2009, the Kentucky Heritage Land Conservation Fund Board approved a proposal to expand the Wild Rivers Program's purchase area. Prior to this proposal, the Wild Rivers Program was permitted to purchase private lands lying within any 14 digit HUC that either drain into or contain a Wild River. Now, the Wild Rivers Program is permitted to purchase private lands lying within any 10 digit HUC that either drain into or contain a Wild River. This transition from a 14 digit HUC boundary to a 10 digit HUC boundary expanded the Wild Rivers Purchase Area from 137,170 acres to 1,442,589 acres, allowing increased opportunity for land acquisition leading to better watershed protection for state-designated Wild Rivers. The Wild Rivers Program is currently negotiating with landowners to purchase an additional 2,000 acres located in the new purchase area.



Antidegradation

Under the antidegradation policy, four classes of waters in the Commonwealth are addressed:

1) outstanding national resource waters (ONRW),
2) exceptional and exceptional-reference reach,
3) high quality waters, and
4) impaired waters.

Under this policy water quality must be maintained in an ONRW and there can be no new or expanded discharger that may result in permanent or long-term changes in water quality. In recognizing water bodies or segments that meet the qualifications for an ONRW the division nominated five surface waters. Four of those five water bodies are located within the Daniel Boone National Forest, and one includes all surface water within the Reelfoot National Wildlife Refuge.

Under the antidegradation category of exceptional and exceptional-reference reach, DOW added 38 waters during the 2008 triennial review. These waters support biological community(s) (fish or macroinvertebrates) that rates as "excellent" on the Kentucky Index of Biotic Integrity (KIBI) or Macroinvertebrate Bioassessment Index (MBI). These streams typically support in-stream and riparian habitats that provide the necessary physical and chemical characteristics that support biological

communities that are of high biological integrity. There are other criteria that provide inclusion of certain other waters. Class 2 waters must go through the antidegradation implementation procedure for those seeking KPDES permits to discharge to these waters. If no technology or economically feasible alternative exists then allowing water quality to be lowered must be demonstrated as necessary to accommodate important economic or social development in the area.

Water Quality Criteria

Water quality criteria are the standards for designated uses implementation and maintaining the quality needed to support those uses, including the designated use of fish consumption for protection of human health. The following water quality standards were added or updated to reflect the latest recommended national water quality criteria, specific criteria to Kentucky waters, and add clarity to certain definitions as they relate to implementing criteria.

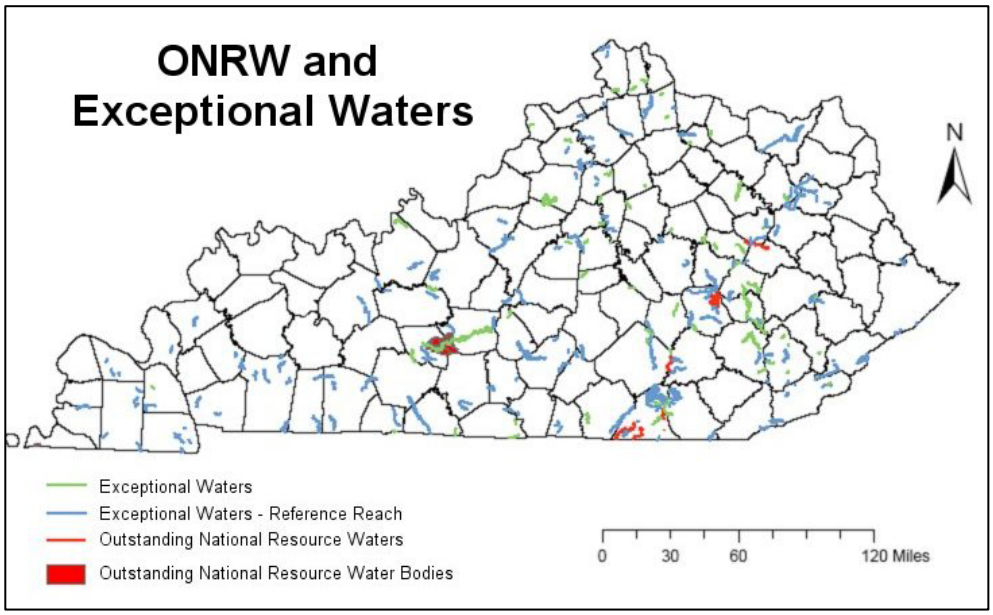
1. Dissolved oxygen criterion for OSRWs that are included as exceptional waters shall maintain a minimum instantaneous concentration of 5.0 mg/L and 24-hour average of not less than 6.0 mg/L.

2. Maintenance of dissolved oxygen at a minimum of 5.0 mg/L as a daily maximum was changed to clarify this interval as 24-hours.

3. Addition of the criterion for methylmercury residue in fish tissue. This is now the primary pollutant form monitored for protection of human health from possible mercury contamination related to fish consumption.

4. Definition of "acute criteria" was updated giving specific time parameters to this definition per applicable pollutant.

5. Definition of "chronic criteria" was updated giving specific time parameters to this criterion per applicable pollutant.



6. Incorporated ORSANCO's criterion for nitrite-nitrogen for the protection of human health of 1.0 mg/L and must be met at the edge of the mixing zone (applies to Ohio River only).

7. Clarified the radionuclide criterion as applicable to domestic water only for protection of human health and is not applicable as criteria to all waters.

8. Adopted criteria for nonylphenol for protection of aquatic life.

9. Updated criterion for phenolic compounds (300 µg/L) for organoleptic effects.

10. Updated criteria concentrations for several substances:
    a. Fluoride (human health)
    b. Gamma-BHC (Lindane) (human health)
    c. Methoxychlor (human health)
    d. 1, 1-dichloroethylene (human health)
    e. 2, 4-D (human health)

DOW restructured 401 KAR 10:026 to remove the partial list of named waters listed for default designated uses as defined in this regulation. This was undertaken to provide clarity to the public and agency personnel by specifying those waters where only the special designated use of OSRW is applicable and for those waters where domestic water supply use is implemented by criteria per 401 KAR 10:031. All other waters are understood to be designated for Warm Water Aquatic Life, Primary and Secondary Contact Recreation and Fish Consumption uses.

Numeric Nutrient Criteria

The next triennial review in 2011 will focus on consideration of numeric nutrient criteria. The division submitted its revised nutrient criteria development plan to USEPA Region 4 in January 2009; it was subsequently approved. This plan targets the development of numeric nutrient criteria for wadeable streams, lakes and reservoirs. DOW is developing a paper outlining the strategy for monitoring and identifying response indicators to concentrations of nutrients.

Numeric nutrient criteria development for boat-able waters, and those with watershed areas too great for wadeable stream classification per DOW's bio-criteria, is beginning a similar process review. Beginning April 2010 monitoring of chlorophyll *a* and phytoplankton was added to the ambient water quality monitoring program at select stations (see page 51 for more information).

Selenium

On December 17, 2004 the USEPA published a draft proposed water quality chronic criterion for selenium based on fish tissue residue. The whole-body fish criterion concentration was proposed as >7.91 mg/Kg dw (dry weight). If a whole-body selenium concentration of 5.85 mg/Kg dw from fish collected in summer or fall was determined, a trigger for follow-up tissue collection in the winter was to be collected to determine if the concentration had increased above 7.91 mg/Kg dw. This draft criterion was subsequently withdrawn in light of additional information obtained within USEPA and the scientific community. Draft selenium criterion was expected from USEPA in late winter 2010, but has yet to be released. The Division will review the draft and final national recommended criterion once published in the *Federal Register*.

Specific Conductivity

USEPA is investigating benchmark conductivity values in the Central Appalachian streams to protect indigenous aquatic species. Field investigations find conductivity ≥300 µS/cm result in loss of sensitive taxa, particularly species of mayflies (Ephemeroptera). DOW has narrative criteria to protect aquatic life for the pollutant total dissolved solids or its surrogate conductance, that result in a conductivity great enough to be harmful to aquatic life. In assessment of Central Appalachian streams for aquatic life, when the macroinvertebrate community indicates less than full support, the narrative criteria for TDS or conductivity is implemented when the water has a high conductance (conductivity ≥300 µS/cm) listing specific conductivity as a likely pollutant affecting the biologic community. The division will review USEPA draft criteria related to specific conductivity should such action occur.

Quality Assurance

WQB made significant improvements in the area of quality assurance in SFY 2010. Most of the core SOP documents used by WQB were refined to improve clarity, incorporate more specific quality assurance procedures, and standardize formats for all procedures and across monitoring programs.

SOPs were developed to address threatened and endangered species monitoring and assessment in cooperation with state and federal agencies. OSRWs also underwent additional documentation for assessment methodologies.

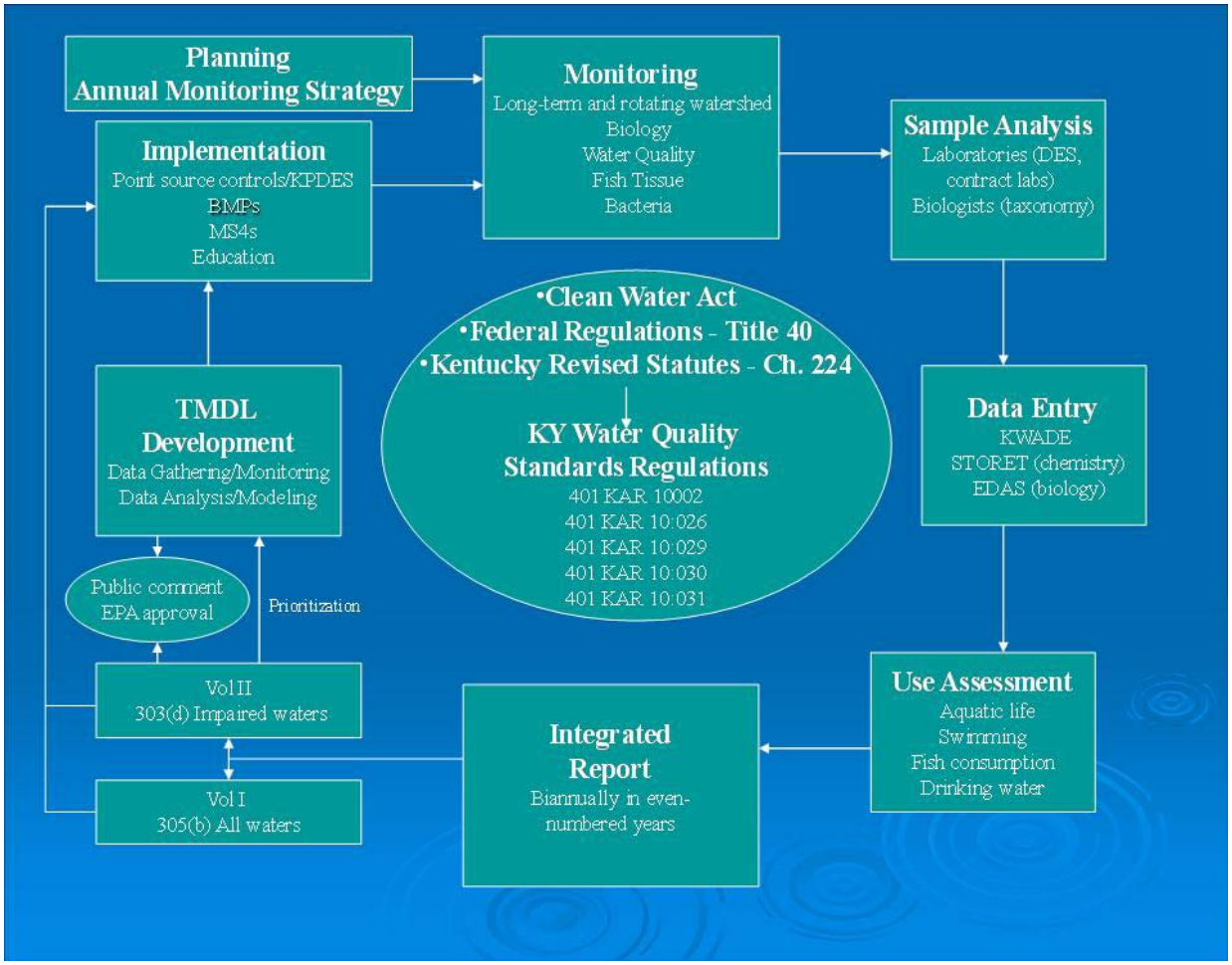
A special work group was convened to address specific surface water quality issues. One of the issues discussed was data quality and the standard of quality to be used in DOW and outside data efforts. The initial group met and brainstormed ideas to develop ways and means to establish a division standard for water quality monitoring data.

Water Quality Assessment

Each year DOW/WQB manages and reviews biological and physicochemical data collected from the various monitoring programs. This effort follows DOW rotation through BMUs (basin management unit); however, data from other BMUs are considered for assessment as needed and available. During odd-numbered years 305(b) assessments are made and an electronic update of these assessment results is provided to USEPA. Under the Clean Water Act (Section 305(b)) states are required to submit a written report in even numbered years that informs Congress on the condition of its water resources. This comprises Volume I of the Integrated Report (IR). The assessment of water resources under Section 305(b) has broad-reaching implications as it sets the course on how the division implements many of its programs and provides a foundation to report on water quality trends under appropriate monitoring programs.

An annual monitoring strategy is developed and implemented throughout the year. The structure and process for the monitoring programs is illustrated on the next page.

The following monitoring programs illustrate what the Branch accomplished for Clean Water Act requirements. For calendar year 2009, staff were focused in the Salt/Licking River basin management unit, and in CY 2010, the Upper/Lower Cumberland and Four Rivers basin management units (BMUs) are under assessment.



Reference Reach Monitoring

Reference reach stations represent the "least-impacted" stream segments within geographical regions of Kentucky. These stream segments have high biological integrity and are used to develop biological criteria to assess aquatic life use. In 2009, the Monitoring Section collected fish community, macroinvertebrate community, diatom community, habitat and chemistry data from 18 reference reach streams within the Salt/Licking River basins. All of these streams continue to maintain good biological community structure.

From March through June 2010, 15 reference sites were sampled for biological assessment. Eight more sites will be sampled during the final portion of the sampling season (July through October). Data will be processed and analyzed this fall and winter. Assessments will be completed by October 2011 for the next IR update.

Ambient Water Chemistry

Water chemistry data are collected from a fixed ambient network of stations. These data are used to determine trends and assess aquatic life use. From July 2009 through March 2010, water chemistry samples were collected from 30 ambient and rotating stations in the Salt and Licking River watersheds on a monthly basis, while non-basin ambient stations were collected every other month. Starting in April 2010, the BMU cycle moved to the

Cumberland/Four River watersheds. Forty-two ambient and rotating stations within these watersheds were sampled monthly, while the non-BMU ambient stations were collected every other month.

In addition to water chemistry, chlorophyll *a* data were collected at a selected set of 30 ambient sites in June. Chlorophyll *a* monitoring will continue through the primary growing season (July through October). These data will be used to assist in the development of nutrient criteria for large rivers (streams and rivers greater than 200 square miles). See page 48 for more information.

Ambient Biological Monitoring

Monitoring Section staff will be collecting fish community data from 12 ambient biological monitoring stations in the Cumberland/Four Rivers BMU. As of July 2010, one station has been sampled. Because these stations are located in large streams, most sampling will occur from August through October.

Probabilistic Water Quality Monitoring

Probabilistic monitoring program personnel collect macroinvertebrate and fish community, habitat and chemistry data from a set of probabilistically selected sites within the targeted basin management unit of the year. Data collected via this program is used to assess aquatic life use throughout the watershed. From January through June 2010, 40 of the 50 selected streams were sampled within the Cumberland/Four Rivers basins as a part of this program. The remaining ten sites will be collected during the rest of the sampling season (July through October). Data will be processed and analyzed for the IR update.

Probabilistic Fish Tissue Monitoring

Kentucky has an on-going statewide fish consumption advisory for mercury, stating that children and women of childbearing age should limit their intake of freshwater fish to one meal a week. Data collected indicates that this advisory needs to be updated to reflect current conditions. The Monitoring Section initiated a fish tissue project in 2009 to focus on mercury concentrations in black bass. The 40 samples collected in 2009 were from randomly selected lake sites. So far in 2010, 20 black bass samples have been collected at large river stations throughout the state. The other 20 sites will be sampled during the rest of the 2010 sampling season (July through October) .

Bacteriological Monitoring

Monitoring for pathogens in 2009 included *Escherichia coli* (*E. coli*) sampling in the Salt and Licking River watersheds. Thirty stations within these basins were sampled monthly during the primary contact recreation season. During this reporting year, the Salt and Licking River stations were sampled from July through October 2009.

In SFY 2010, 42 ambient and rotating stations in the Cumberland and Four Rivers basins are sampled for *E. coli* on a monthly basis. Additionally, bacteria were collected at Green River Reservoir and Dale Hollow Reservoir in May and June. *E.coli* samples are collected during the primary contact recreation season (May through October) to determine if the "swimmable" (primary contact recreation) use is being supported. Once all data are collected for the remainder of the primary contact recreation season, the data will be processed and assessments will be made for the IR update.

In addition to those sites being monitored in the Cumberland/Four Rivers BMU, selected central

Kentucky ambient sites were chosen for intensive bacteria surveys. These stations will be sampled five times within a thirty day period during the primary contact recreation season. Data will be used in the future to assess swimming advisory recommendations.

Lake Monitoring

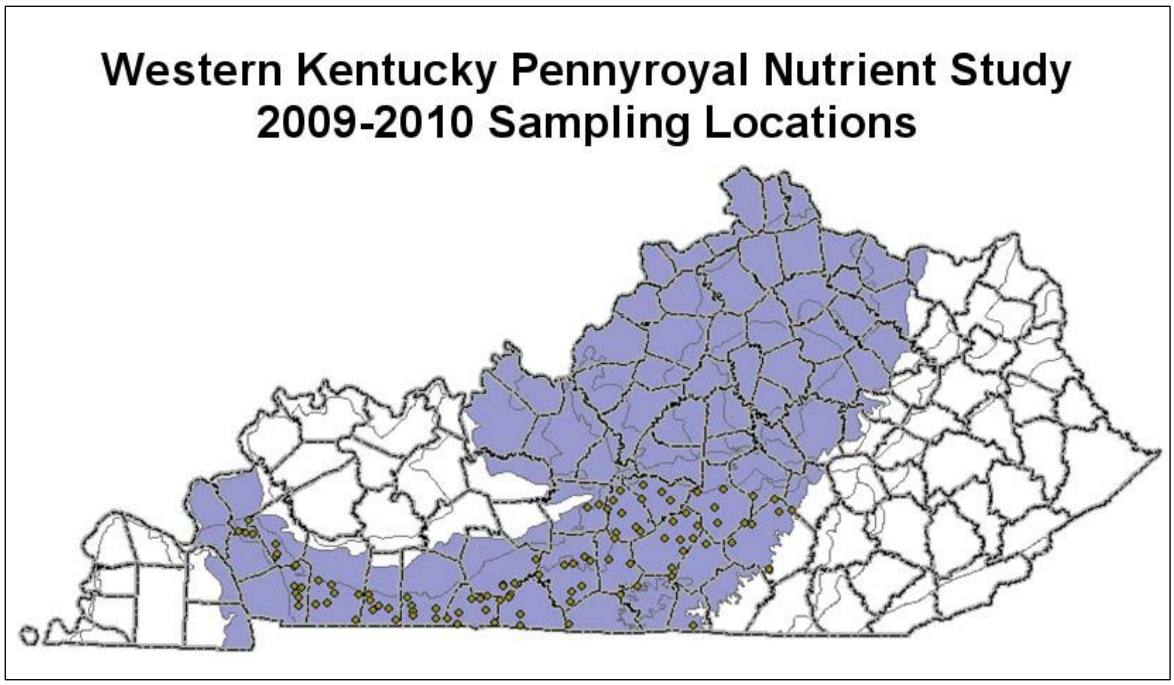
Water chemistry and chlorophyll *a* data are collected from lakes and reservoirs within each basin management unit. Fall samples were collected at 17 Salt and Licking River Basin lakes in 2009. Spring and summer samples were collected from 18 reservoirs in the Cumberland and Four Rivers Basins in 2010. Data from this program are being used to assist in the development of nutrient criteria for Kentucky's lakes and reservoirs. The data will be processed and assessments will be made for the next IR update.

Large River Monitoring

Large river monitoring protocols were developed by USEPA; staff from Kentucky were trained in these protocols on large rivers in the state. An initial test of the protocols was accomplished with USEPA, and implementation of large river network sampling will occur in SFY 2011. Ten sampling locations on the Cumberland River above the Falls have been chosen for this pilot project. Sampling will be conducted in September/October 2010 or June/July 2011.

Nutrient Special Studies

The Monitoring Section contributes to the development of nutrient criteria by designing and conducting studies to identify nutrient levels that impact biological communities. The studies focus on specific regions and stream types so that the influence of regional and physical factors on nutrient effects can be minimized. In SFY 2010, the Monitoring Section has been involved in the data collection phase with a special study in the Western Pennyroyal Karst/Eastern Highland Rim (71e and 71g ecoregions).



Study Name	Project Design & Planning	Sampling	Sample Analysis & Data Summaries	Reporting	Partners Involved
Reference Reach Nutrient Study					WQB (DOW)
71a Ecoregion Nutrient Study					USGS
Mountains Nutrient Study					KGS
71e/71g Ecoregion Nutrient Study					WKU

These studies have been made possible through partnerships for the collection of the water nutrient samples. Section 106 supplemental funds, 104(b) grants and interagency agreements have been successfully pursued. Activities in SFY 2010 included study design and planning, sampling, sample analyses and data summaries and reporting.

Water Quality Certification

The Water Quality Certification (WQC) Section administers water certifications through the Clean Water Act Section 401, as well as coordinating special monitoring projects and grants relating to wetlands and mitigation projects.

Certification

The certification actions of 401 involve coordination with the USACE Section 404 permit program. Both programs involve water-quality certifications relating to mitigation measures when waters are proposed to be altered/affected from their natural functioning.

Clean Water Act Section 404 administered by the regulatory section of USACE – Permits for dredged or fill material

Clean Water Act Section 401 administered by DOW provides state oversight of the federal 404 permitting program. DOW must issue a 401 Water Quality Certification for a 404 USACE permit to be valid.

Examples of activities that may require a Section 401 water quality certification:

- Dredging Activities
- Fill Activities
- Bridges/Culverts
- Alterations to stream channels including restoration.

Other Activities

For SFY 2010, the WQC Section also engaged in the following activities:

Action	Number
Issued Individual Certifications	209
Issued General Certifications	600
Conducted Site Visits	452
Participated on Interagency Review Team	monthly meetings

Wetlands

The WQC Section continued to manage a wetland development grant that began in 2005, designed for the feasibility of 404 assumption, to produce a non-compensatory mitigation report, and to accomplish the hiring of two project managers and one compliance manager.

WQC received a $700,000 Wetland Program Development Grant in early 2010. The grant will enable WQC to develop and biologically validate a rapid wetland assessment method specifically for Kentucky. This method is critically needed to assess the condition and functions of wetlands under the jurisdiction of the Section 404/401 permitting process. This regulatory tool will enable the USACE and the WQC Section to scientifically assess wetland impacts so they can be avoided, reduced, and/or properly mitigated. A technical advisory committee has been formed and will begin meetings in SFY2011.

The WQC Section is the lead agency for Kentucky in the USEPA National Wetland Condition Assessment. This national assessment of wetland condition will be performed across the United States in 2011. Kentucky has 12 probabilistically-determined sites, most of which are located in the Four Rivers Basin in western Kentucky. This year we have participated in a technical review of the field operations manual and the rapid assessment method (USA-RAM), in addition to locating and evaluating the 12 sample sites.

The Water Quality Certification Section is also developing an ambient wetland assessment program. Under the Clean Water Act, states are required to monitor and report on the quality of all their waters, including wetlands. Also, it is DOW's goal to move toward an increase in quantity and quality of wetlands in the state of Kentucky. The development of an ambient wetland monitoring and assessment program will establish a baseline of ambient wetland conditions, track trends, assist in the development of wetland water.

Education Outreach

Disaster Assistance and Relief Team (DART)- Members of the WQC Section are also serving as emergency responders to assist with NRCS and other agencies during emergency events that have impacts on Kentucky's waterways.

DART Hits the Mark

When flooding occurs and conditions are declared a disaster, the goal is to get relief to the victims as quickly as possible. Part of that relief involves assessing damage and making remedial determinations. Previously this work, permitted under USACE Nationwide Permit 37 Emergency Watershed Plan, was carried out by the Natural Resources Conservation Service (NRCS) on site with city and/or county engineers. However, some of the remedial options conflicted with conditions of permits issued DOW.

To allow for damage assessment and remedial determinations to be made in a timely manner while staying within permit conditions, the United States Army Corps of Engineers, NRCS and DOW began meetings to resolve differences after the flood event of 2008. In June 2010, the Disaster and Response Team (DART) was created with all agencies working together. DART now meets on site at the flood impacted areas and decides what remedial option is best for that site. DART members look forward to providing fast, efficient coordinated service to the people of Kentucky in the midst of disaster.

Total Maximum Daily Loads (TMDLs)

Reporting/303(d) Lists

Requirements from Section 303(d) of the Clean Water Act include:

- Listing of impaired waters in the IR format
- Calculating total maximum daily loads (TMDLs) for each Pollutant/Waterbody Combination (PWC)
- Delisting impaired waters that have successfully shown improvement and meet designated uses

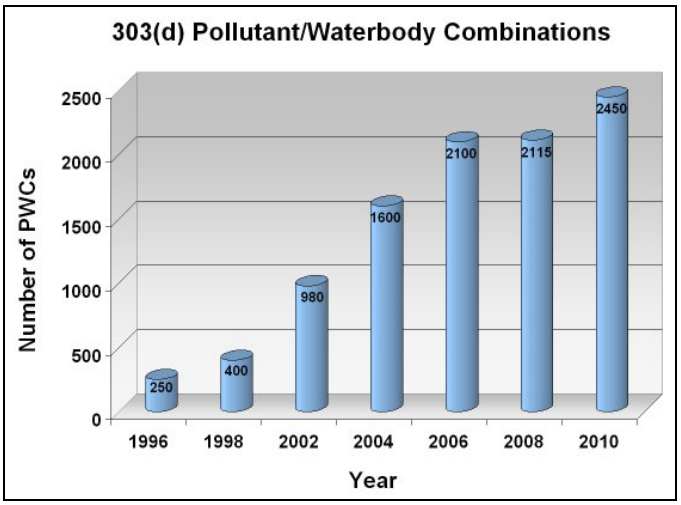
Kentucky has produced Water Quality Reports to Congress (305(b) reports) biennially since 1976 and electronic data submittals in odd years since 2001. Kentucky has produced 303(d) lists of impaired waters biennially since 1990 (except 2000). As of 2006, USEPA requires an IR that covers reporting requirements under Section 305(b) and 303(d); thus DOW developed a two-volume IR for the 2006, 2008 and 2010 reporting cycles. The 305(b) portion of the report (Volume I) lists all water quality assessment results for surface waters (streams, springs, lakes, ponds, and reservoirs) in Kentucky. The 303(d) portion of the report (Volume II) is a subset of those waters including all waters not supporting one or more designated uses and requiring the development of a TMDL.

Volume II of the 2010 IR is in draft form and awaiting approval to go to public notice prior to submittal to USEPA for approval. During the public comment period, DOW will accept comments and the draft report will be amended appropriately.

Assessed Waterbodies

As assessments of more streams have been performed over the years, the number of impaired waterbodies has increased proportionally. Volume II of the IR contains 2,416 PWCs. USEPA requires

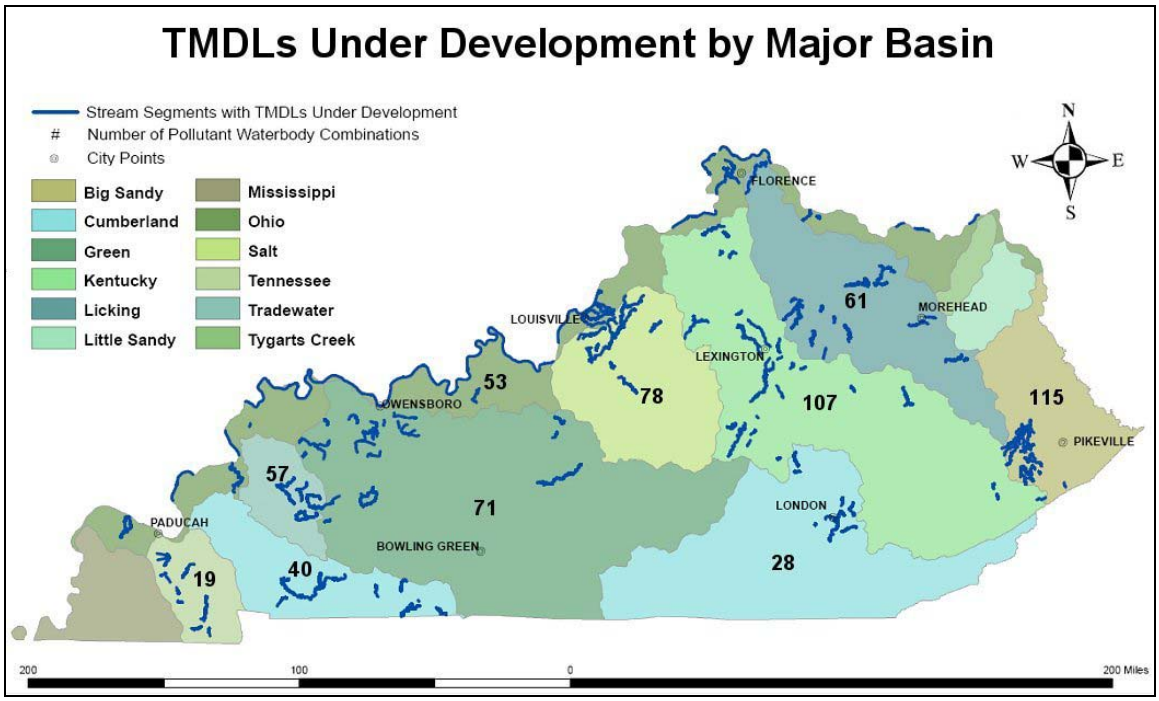
that each PWC have an approved TMDL within 13 to 15 years from the initial listing.



TMDL Development

Another requirement of Section 303(d) is that states must calculate TMDLs for impaired waterbodies on the 303(d) list. A TMDL is a calculation of the maximum amount of a pollutant that a waterbody can naturally assimilate and still maintain its designated use(s). Designated uses for Kentucky's streams, springs, ponds and lakes include aquatic life uses, primary and secondary contact recreation uses (swimming, boating, etc.), drinking water and fish consumption (implied use). The TMDL calculation, usually expressed in units of mass/unit time, is also termed the loading capacity. A TMDL must be calculated for each pollutant impairing a lake, spring, pond or a specific reach of stream.

There are over 600 PWCs for which a TMDL is currently under development. While DOW is responsible for submitting TMDLs to USEPA, many are being developed by third parties, including USEPA, universities, consultants and municipalities. TMDL development begins with the monitoring of the impaired stream segments.



Monitoring

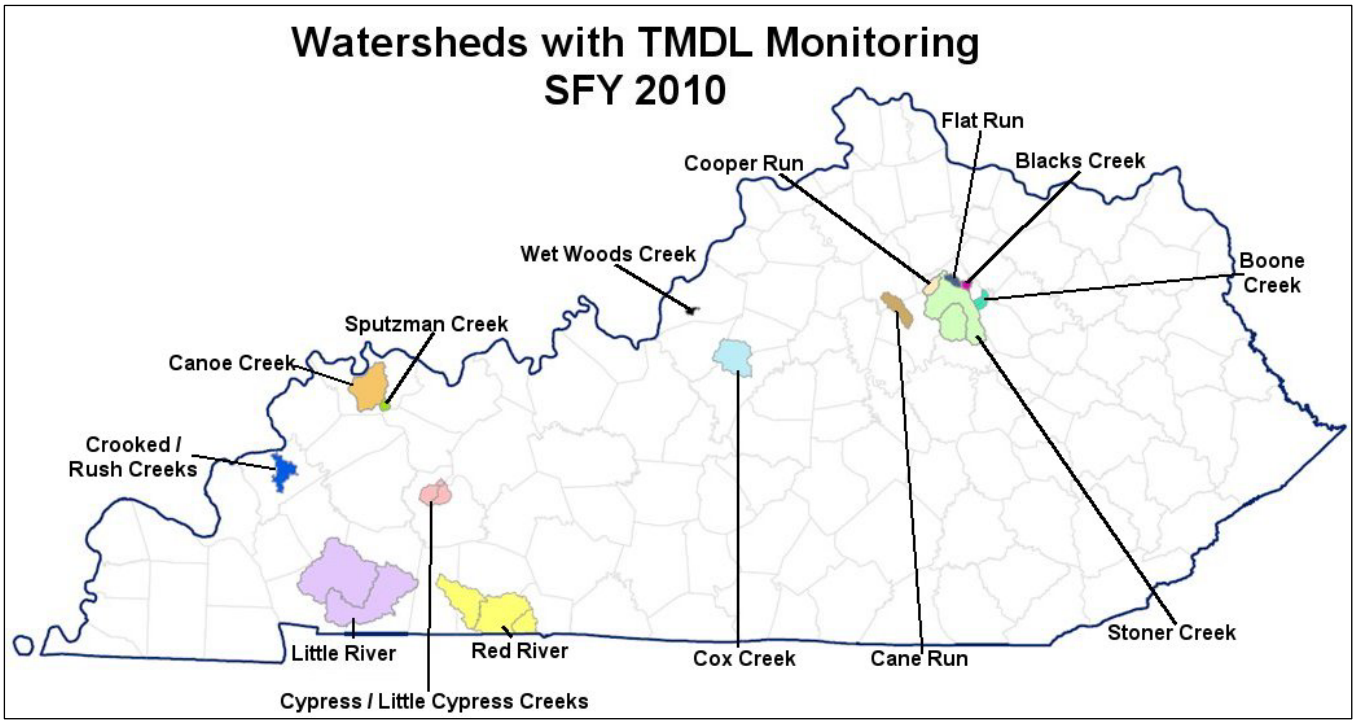
During FY2010, TMDL monitoring staff collected samples from 94 chemical, 33 biological and 101 bacteriological sites located within 14 watersheds. Most chemical sites are visited on a monthly basis for one year. Bacteriological sites are visited approximately 10 times during the summer primary contact recreation season. Biological sites are visited once. For FY2010, the monitoring staff collected 2314 chemical, 598 bacteriological and 33 biological samples. The following map shows the watersheds in which TMDL monitoring data was collected in SFY2010.

TMDL analysts utilize the data collected by the monitoring staff to calculate the TMDL for each pollutant/waterbody combination. Once the data are analyzed, a report is written to disseminate the findings. These TMDL reports must undergo internal DOW review (preliminary review), a 30-day public comment period (proposed review) and must be approved by USEPA (final review). The TMDL reports contain limits for both point and non-point sources of the pollutant such that a waterbody can be brought back to full support of its designated uses.

The TMDL Section had committed to USEPA to obtain approval for 35 TMDLs for FFY2010, which ends September 30, 2010. The TMDL Section has written and received formal USEPA approval for 25 pathogen TMDLs in the Dix River Watershed and one pH TMDL in the Cypress Creek watershed during the state 2010 Fiscal Year. Twenty two pathogen TMDLs within the Beaver Creek Watershed went to preliminary review on June 30, 2010. The TMDL Section has committed to USEPA to obtain approval for 100 TMDLs for FFY 2011.

Delisting from 303(d)

There are two means by which a listing can be removed from Volume II of the Integrated Report: develop a TMDL or delist without TMDL development. Delistings only occur during a listing



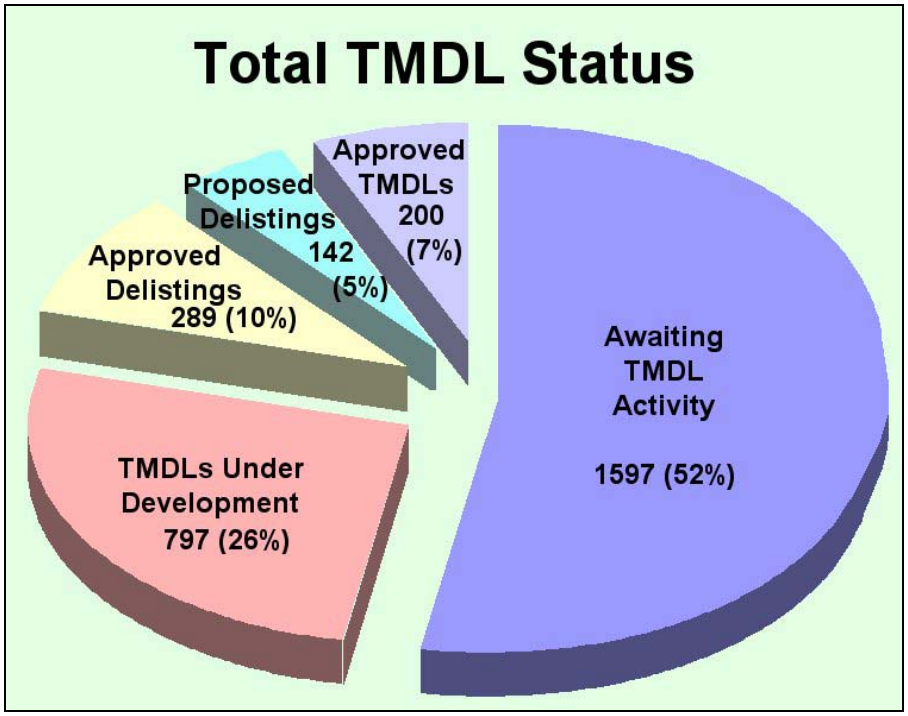
cycle year and only with USEPA approval. Delistings can be due to errors in the initial listing or to an improvement in water quality such that the water is no longer impaired for a specific pollutant. As of 2010, USEPA has formally approved TMDLs for a total of 200 PWCs and USEPA has approved delisting requests for 289 PWCs. DOW is requesting delistings for 149 PWCs for 2010. If USEPA does not approve the delisting(s), it will be placed back on the 303(d) list.

The TMDL Section is improving the productivity of TMDL development by writing, implementing and revising SOPs and QAPPs.

TMDL data analyst staff received WATERS model training from USGS as part of a Section 319(h) grant. This model will generate Load Duration Curves with the click of a button, which will reduce the amount of time of TMDL writing. In addition, two data analysts will be receiving WASP and HSPF model training. This model training will broaden the scope of TMDL development from pathogens to developing nutrient TMDLs. The monitoring and data analyst staff has received training in sediment morphology. The monitoring staff is purchasing the equipment to conduct our own sediment morphology studies for our data analyst staff to develop sediment TMDLs in priority watersheds.

Education and Outreach

The TMDL Section is developing a watershed newsletter as public outreach. The newsletter will represent a report card of the water quality in each watershed where the TMDL Section conducts monitoring. In addition, the newsletter will contain information on how to improve the water quality in the particular watershed and will guide the public to additional assistance to help improve their watersheds.



Department for Environmental Protection
Division of Water

Referral Directory

Accounts Payable	Water	4806	Linda Duncan
Accounts Receivable	Water	4806	Linda Duncan
Adopt a Stream	Water	4939	Jo Ann Palmer
Advisories, Swimming & Fish Consumption	Water	4962	Allison Fleck
Aerator Systems	Water	4851	Larry Sowder
Algae Information	Water	4861	John Brumley
Ambient Groundwater Monitoring Data	Water	4926	Rob Blair
Ambient Water Monitoring Data	Water	4861	John Brumley
Americans with Disabilities Officers (ADA)	Water	4979	Karen Edwards
Animal Feeding Operations (AFOs)	Water	4850	Jory Becker
	Water	4896	Ronnie Thompson
Animal Waste Facilities	Water	4896	Ronnie Thompson
Asbestos	Water	4988	Brian Chitti
Auto/Truck Facilities – Waste Water Permitting (KPDES)	Water	4954	Mahmoud Sartipi
Biomonitoring of Whole Effluents	Water	4881	Charles Clark
Biological Monitoring	Water	4861	John Brumley
Boil Water Advisories	Water	4955	Sally Barclay
Bottled Water – Plan Review	Water	4804	Solitha Dharman
Budget	Water	4809	Tim Miller
	Water	4810	Ron Price
Car Wash – Waste Water Permitting (KPDES)	Water	4954	Mahmoud Sartipi
Certification – Monitoring Well Drillers	Water	4940	Joe Moffitt
Certification – Water Well Drillers	Water	4940	Joe Moffitt
Certification – Wetlands (401)	Water	4855	Alan Grant
Chemical Plants Permitting (KPDES)	Water	4851	Larry Sowder
Coal Mining Facilities Permitting (KPDES)	Water	4899	Ross Bishop
Combined Sewer Overflows (CSOs)	Water	4852	Gary Levy
Commercial Discharge Permitting (KPDES)	Water	4851	Larry Sowder
Complaints	Water	4955	Sally Barclay
Comprehensive Technical Assistance Program.	Water	4958	Julie Roney
Computer (Hardware/Software)	Water	4597	Roya Pour-ghasemi
Consumer Confidence Reports	Water	4987	Natalie Bruner
Corps of Engineers	Water	4855	Alan Grant
Dams	Water	4992	Marilyn Thomas
Dams – Inspections	Water	4992	Marilyn Thomas
	Water	4991	Scott Phelps
Data Entry	Water	4580	Linda Baker
Data Management, Departmental	Water	4597	Vacant
Office of Information Services (OIS)	EEC	5174	
Distilleries – Waste Water Permitting (KPDES)	Water	4851	Larry Sowder
Discharge Monitoring Data (DMR)	Water	4915	Carolena Bentley
	Water	4923	Vickie Prather
DMR – QA Program	Water	4891	Abigail Rains
Dredging	Water	4855	Alan Grant

Drinking Water Compliance	Water	4959	Frank Hall
Drinking Water Regulations	Water	4808	Abigail Powell
Drinking Water Testing	Water	4959	Frank Hall
Drought	Water	4934	Bill Caldwell
Dye Tracing	Water	4926	Rob Blair
Ecological Support	Water	4861	John Brumley
Education Coordinators	Water	4962	Allison Fleck
Environmental Watch	Water	4939	Jo Ann Palmer
Adopt A Stream	Water	4939	Jo Ann Palmer
Environmental Watch Hot Line	Water	800-928-2380	
Equal Employment Opportunity Counselors	Water	4979	Karen Edwards
401 Certification	Water	4855	Alan Grant
Facility File (KPDES)	Water	4571	Morgan Elliston
	Water - KPDES	4569	Lorrie Huffman
	Water - KPDES	4570	Jeff Robinson
Facilities Plan	Water	4912	Jill Bertelson
Federal Emergency Management Agency (FEMA)	Water	4906	Chris Hart
Federal Grants / Budget (see also Grants / Budgets)	Water	4809	Tim Miller
	Water	4810	Ron Price
FEMA Map Modernization Program	Water	4928	Carey Johnson
FEMA Risk MAP Program	Water	4928	Carey Johnson
Field Offices, DEP	Water	4957	Tom Gabbard
	Bowling Green	270/746-7475	Air, Waste, Water
	Columbia	270/384-4734	Water
	Florence	859/525-4923	Air, Waste, Water
	Frankfort	564-3358	Air, Waste, Water
	Hazard	606/435-6022	Air, Waste, Water
	London	606/330-2080	Air, Waste, Water
	Louisville	502/429-7122	Water
	Madisonville	270/824-7529	Water
	Morehead	606/783-8655	Waste, Water
	Paducah	270/898-8468	Air, Water
File Rooms			
	Water - KPDES	4571	Morgan Elliston
	Water - KPDES	4569	Lorrie Huffman
	Water - KPDES	4570	Jeff Robinson
	Water - Drinking Water	4579	Judy Ward
Fish Tissue	Water	4859	Eric Eisiminger
Flood Insurance Program	Water	4906	Chris Hart
Floodplain Enforcement	Enforcement	290	Jeff Cummins
Floodplain and Dam Complaints	Water	4991	Scott Phelps
Floodplain Construction	Water	4905	Barry Elmore
	Water	4888	Kate Carigan
Floodplain Maps	Water	4928	Carey Johnson
Floodplain Permits	Water	4905	Barry Elmore
	Water	4888	Kate Carigan
Gas and Oil	Water	4894	Dan Juett
	Water	4901	Diana Davidson
Geology	Water	4932	David Jackson
	Water	4926	Rob Blair
	Water	4948	Phil O'Dell
GIS	Water	4945	Susan Cohn
	Water	4949	Jim Seay

Grants/Budget			
Water – Budget	Water	4809	Tim Miller
	Water	4810	Ron Price
Water – Grants	Water	4810	Ron Price
Groundwater Contamination	Water	4932	David Jackson
Groundwater Database	Water	4931	Jo Blanset
Groundwater Educational Material	Water	4947	Pat Keefe
Groundwater Monitoring	Water	4932	David Jackson
	Water	4926	Rob Blair
Groundwater Protection Plans	Water	4947	Pat Keefe
Groundwater Regulations	Water	4932	David Jackson
Groundwater Remediation – Wastewater Permitting (KPDES)	Water	4954	Mahmoud Sartipi
Groundwater Sensitivity Vulnerability	Water	4932	David Jackson
Groundwater Technical Support	Water	4932	David Jackson
Groundwater Water Withdrawal Permit	Water	4933	Chris Yeary
Hydrogeology	Water	4948	Phil O'Dell
Industrial Wastewater Permitting (KPDES)	Water	4925	Sara Beard
Inventory (State-Owned Property)	Water	4806	Linda Duncan
Inventory Data Sheet (Drinking Water)	Water	4981	Todd Ritter
Karst Investigations	Water	4948	Phil O'Dell
KPDES Program	Water	4850	Jory Becker
KPDES, Groundwater, Dye Tracing	Water	4932	David Jackson
	Water	4926	Rob Blair
KPDES, Permit Application Assistance / Status			
General Process Requirements.	Water	4923	Vickie Prather
Laboratory Certification			
Bacteriological	Water	4968	Patrick Garrity
Lagoons – Construction (KPDES)	Water	4896	Ronnie Thompson
Lake Information – Standards	Water	4856	Randy Payne
Landfills – Wastewater Permitting (KPDES)	Water	4954	Mahmoud Sartipi
Laundries – Wastewater Permitting (KPDES)	Water	4954	Mahmoud Sartipi
Lead and Copper in Water	Water	4981	Todd Ritter
Line Extension Bans (Drinking Water)	Water	4804	Solitha Dharman
(Wastewater)	Water	4823	Harold Sparks
Loan Administration (Procurement)	Water	4971	Buddy Griffin
Maps – Floodplain	Water	4928	Carey Johnson
Maps – Geologic	Water	4932	David Jackson
Maps – Making Maps (see also GIS)	Water	4945	Susan Cohn
	Water	4949	Jim Seay
Maps – Topographic w/ RMI Markings	Water	4949	Jim Seay
Maps – Water or Monitoring Wells	Water	4931	Jo Blanset
Medical Exams (Employee)	Water	161	Ken Joyce
Memoranda of Agreement (MOA)	Water	4810	Ron Price
Monitoring Wells	Water	4940	Joe Moffitt
MORs (Monthly Operating Reports)	Water	4959	Frank Hall
Municipal Discharge Permitting (KPDES)	Water	4851	Larry Sowder
National Flood Insurance Program (NFIP)	Water	4906	Chris Hart
	Water	4904	Russell Neal
Needs Survey	Water	4961	Shafiq Amawi
	Water	4839	Amanda Yeary
News Release, Press	Water	4962	Allison Fleck
No Discharge Certification or Operation Permitting (KPDES)	Water	4851	Larry Sowder
Non-Coal Mining (KPDES)	Water	4851	Larry Sowder
Non-Point Source (NPS) Information	Water	4909	Jim Roe
	Water	4907	Margi Jones

Oil & Gas (Activities and Registration)	Water	4894	Dan Juett
	Water	4901	Diana Davidson
Ollie Otter	Water	4939	Jo Ann Palmer
On-Site Wastewater	Water	4942	Beth Finzer
Open Records Request (ORR)	Water	4571	Morgan Elliston
Outstanding State Resource Waters	Water	4861	John Brumley
	Water	4856	Randall Payne
Payroll Checks, Distribution	Water	4973	Becky Correll
PCBs (Polychlorinated Biphenyls)	Water	4859	Eric Eisiminger
Permit Compliance System (PCS)	Water	4923	Vickie Prather
PCS Printout Request	Water	4923	Vickie Prather
Permits			
Dams	Water	4991	Scott Phelps
	Water	4992	Marilyn Thomas
Permits and Plans Review – Distribution	Water	4804	Solitha Dharman
Floodplains – Fill, Bridges, Shear Relocations	Water	4905	Barry Elmore
KPDES	Water	4905	Barry Elmore
Water	Water	4804	Solitha Dharman
Water Withdrawal	Water	4944	Rita Hockensmith
Personnel	Water	4973	Becky Correll
Pipelines and Paper Mills	Water	4851	Larry Sowder
	Water	4896	Ronnie Thompson
Plan Review – Federal Assistance Request (Drinking Water)	Water	4804	Solitha Dharman
Plan Reviews (see also Permits)			
Drinking Water – Distribution	Water	4804	Solitha Dharman
Drinking Water – Treatment	Water	4804	Solitha Dharman
Wastewater Treatment Plants	Water	4924	Greg Goode
Planning, Water Supply	Water	4934	Bill Caldwell
Planning, Watershed	Water	4908	John Webb
	Water	4927	Paulette Akers
Pond Construction	Water	4896	Ronnie Thompson
Power Plant Permitting (KPDES)	Water	4851	Larry Sowder
Press Releases	Water	4962	Allison Fleck
Pretreatment Programs (KPDES)	Water	4880	Jennifer Spradlin
PRIDE	Water	4961	Shafiq Amawi
Program Planning	Water	4810	Ron Price
Public Education Program	Water	4962	Allison Fleck
Public Hearings	Water	4918	Ann Workman
Public Information Coordinator	Water	4962	Allison Fleck
Public Notification (Drinking Water)	Water	4987	Natalie Bruner
Public Notice – KPDES	Water	4918	Ann Workman
Purchasing	Water	4811	Linda Mitchell
	Water	4806	Linda Duncan
Quality Assurance	Water	4946	Lisa Hicks
Rainfall Intensity Values	Water	4991	Scott Phelps
	Water	4992	Marilyn Thomas
Receipts	Water	4806	Linda Duncan
Reference Reach Program	Water	4861	John Brumley
Refunds, Agency	Water	4806	Linda Duncan
Regionalization (Wastewater)	Water	4961	Shafiq Amawi
Regulation Development	Water	4808	Abigail Powell
Regulation Promulgation Status	Water	4808	Abigail Powell
Regulations, Proposed			
Regulations and Statutes	Water	4810	Ron Price
Requests for Copies	Water	4808	Abigail Powell
Review 201	Water	4912	Jill Bertelson

Safe Drinking Water Act	Water	4808	Abigail Powell
Safety Coordinator	Water	4814	Daniel Bishop
Sanitary Sewage Discharge Permits	Water	4905	Barry Elmore
Sanitary Sewer Overflows	Water	4852	Gary Levy
Sewage Treatment Plants (Municipal)	Water	4805	Anshu Singh
Sewer Line Extension and Private Sewage Plants	Water	4823	Harold Sparks
Sewer Overflows (CSOs)	Water	4852	Gary Levy
Sewer Sanctions	Water	4822	Hamid Beykezdeh
Soil Erosion	Water	4909	Jim Roe
	Water	4996	Brooke Shireman
Source Water Protection	Water	4934	Bill Caldwell
State Revolving Fund – Drinking Water	Water	4971	Buddy Griffin
State Revolving Fund – Wastewater	Water	4971	Buddy Griffin
Stone Quarry	Water	4851	Larry Sowder
Storet			
Fecal Coliform	Water	4981	Todd Ritter
Stormwater – Discharge (KPDES) Construction	Water	4849	Alan Ingram
Stormwater – Discharge (KPDES) MS4	Water	4891	Abigail Rains
Straight Pipes	Water	4942	Beth Finzer
Surface Water Quality	Water	4861	John Brumley
	Water	4856	Randall Payne
Surface Water Withdrawal	Water	4933	Chris Yeary
Surplus Property	Water	4819	Brenda Conner
SWAPP	Water	4934	Bill Caldwell
Tap on Bans – Drinking Water	Water		vacant
Tap on Bans – Wastewater	Water	4852	Gary Levy
Technical Groundwater Issues	Water	4932	David Jackson
Total Maximum Daily Load (TMDLs)	Water	4853	Amy Siewert
Toxicity Reduction Evaluations	Water	4881	Charles Clark
Toxicity Testing	Water	4881	Charles Clark
Training Coordinator	Water	4979	Karen Edwards
Underground Injection Control (UIC) Programs	Water	4932	David Jackson
Wage Rates (SRF)	Water	4990	Buddy Griffin
Wastewater Discharge			
Toxics Wasteloads and Modeling	Water	4914	Courtney Seitz
Wastewater Permitting			
Drinking Water Plants (KPDES)	Water	4896	Ronnie Thompson
Water Complaints	Water	4955	Sally Barclay
Water, Director	Water	4972	Sandra Gruzesky
Assistant Director	Water	4012	Peter Goodmann
Administrative Support	Water	4973	Becky Correll
Compliance and Technical Assistance Branch, Manager	Water	4957	Tom Gabbard
Administrative Support	Water	4966	Melissa Baughn
Resource Planning and Program Support Branch, Manager	Water	4810	Ron Price
Administrative Support	Water	4811	Linda Mitchell
Surface Water Permits Branch, Manager	Water	4850	Jory Becker
Administrative Support	Water	4847	Mary Ann Craig
Water Infrastructure Branch, Manager	Water	4961	Shafiq Amawi
Administrative Support	Water	4970	Krystal Harrod
Water Quality Branch, Manager	Water	4858	Clark Dorman
Administrative Support	Water	4857	Kathy Clarkson
Watershed Management Branch, Manager	Water	4927	Paulette Akers
Administrative Support	Water	4930	Jill Wilhelm
Water Availability	Water	4934	Bill Caldwell
Water Conservation	Water	4958	Julie Roney

Water Line Extensions			
Drinking Water – Distribution	Water	4804	Solitha Dharman
Drinking Water – Treatment	Water	4823	Harold Sparks
Water Pollution Control	Water	4962	Allison Fleck
Water Quality Certification – Permit	Water	4855	Alan Grant
Administrative Support	Water	4857	Kathy Clarkson
Water Quality Monitoring – Lakes	Water	4861	John Brumley
Water Quality Monitoring – Streams	Water	4861	John Brumley
Water Quality Report to Congress (305(b) Report)	Water	4856	Randy Payne
Water Quality Standards	Water	4856	Randy Payne
Water Quality Standards Request	Water	4012	Peter Goodmann
Water Patrol – Locks and Dams		564-3074	
Water Supply Planning	Water	4934	Bill Caldwell
Water Supply Protection	Water	4934	Bill Caldwell
Water / Wastewater Operator Certification	DCA	652	Julia Kays
Water Watch	Water	4939	Jo Ann Palmer
Water Well Drilling and Enforcement	Water	4940	Joe Moffit
Water Well Records	Water	4931	Jo Blanset
Water Withdrawal Database	Water	4944	Rita Hockensmith
Water Withdrawal Permitting	Water	4933	Chris Yeary
	Water	4944	Rita Hockensmith
Watershed Planning	Water	4908	John Webb
	Water	4927	Paulette Akers
Watersheds	Water	4927	Paulette Akers
Kentucky River Basin		(859) 257-1299	Melissa McAlister
Licking River Basin	Water	4937	Lajuanda Haight-Maybriar
Salt River Basin	Water	4908	John Webb
Cumberland River Basin	Water	(606) 878-0157	John Webb
Upper Cumberland River Basin	Water	(606) 878-0157	John Webb
Four Rivers Basin	Water	(606) 878-0157	John Webb
Tennessee River Basin	Water	(606) 878-0157	John Webb
Mississippi River Basin	Water	(606) 878-0157	John Webb
Lower Cumberland River Basin	Water	(606) 878-0157	John Webb
Green River Basin	Water	(270) 746-7475	Dale Reynolds
Tradewater River Basin	Water	(270) 746-7475	Dale Reynolds
Ohio River Basin	Water	4908	John Webb
Big Sandy River Basin	Water	4908	John Webb
Little Sandy River Basin	Water	4908	John Webb
Tygarts River Basin	Water	4908	John Webb
Webpage Development – Drinking Water	Water	4962	Allison Fleck
Well Tags and Forms	Water	4940	Joe Moffitt
	Water	4931	Jo Blanset
Wellhead Protection	Water	4933	Chris Yeary
Wells (Water or Monitoring)	Water	4940	Joe Moffitt
	Water	4931	Jo Blanset
Wetlands Construction Permits	Water	4855	Alan Grant
Wetlands / 401, 404 – Enforcement	Enforcement	564-2150	Jeff Cummins
Wild Rivers	Water	4864	Zack Couch
Wild Rivers / KRS Chapter 146 – Enforcement	Enforcement	564-2150	Jeff Cummins
Zebra Mussels	Water	4870	Sue Bruenderman