Executive Summary

North Carolina's Basinwide Approach to Water Quality Management

Basinwide water quality planning is a nonregulatory watershed-based approach to restoring and protecting the quality of North Carolina's surface waters. The NC Division of Water Quality (DWQ) prepares basinwide water quality plans for each of the 17 major river basins every five-years. While these plans are prepared by the DWQ, implementation and the protection of water quality entail the coordinated efforts of many agencies, local governments and stakeholders in the state.

The goals of basinwide planning are to:
- Identify water quality problems and restore full use to Impaired waters.
- Identify and protect high value resource waters.
- Protect unimpaired waters yet allow for reasonable economic growth.

DWQ accomplishes these goals through the following objectives:
- Collaborate with other agencies to develop appropriate management strategies.
- Assure equitable distribution of waste assimilative capacity.
- Better evaluate cumulative effects of pollution.
- Improve public awareness and involvement.

The first basinwide plan for the Catawba River basin was completed in 1995 and the second in 1999. This 2004 *Catawba River Basinwide Water Quality Plan* is the third five-year update. The format of this plan was revised in response to comments received during the first and second planning cycles. DWQ now places greater emphasis on more detailed information specific to the Catawba River basin's watersheds. A greater emphasis was placed on identifying causes and sources of pollution for individual streams in order to facilitate local restoration efforts.

DWQ considered comments from three public workshops held in the basin and subsequent discussions with local resource agency staff and citizens during draft plan development. This input will help guide continuing DWQ activities in the basin.

Catawba River Basin Overview

The Catawba River basin, along with the Broad River basin, forms the headwaters of the Santee-Cooper River system. This river system begins on the eastern slopes of the Blue Ridge Mountains in NC, flows through the NC piedmont to the NC-SC border near Charlotte, and continues to flow through South Carolina to the Atlantic Ocean.

The basin contains the Linville River, one of only four state designated Natural and Scenic Rivers. The mainstem of the Catawba River is regulated by a series of seven hydropower reservoirs: Lake James, Lake Rhodhiss, Lake Hickory, Lookout Shoals Lake, Lake Norman, Mountain Island Lake and Lake Wylie. Lake Wylie crosses the border of NC and SC. There are 3,048 miles of named and classified freshwater streams and over 50,000 freshwater impoundment acres within the NC portion of the basin.

Surface Water Classifications and Use Support Assessments

Use support assessments based on surface water classifications form the foundation of this basinwide plan. Surface waters are classified according to their best-intended uses. Determining how well a waterbody supports its uses (*use support* status) is an important method of interpreting water quality data and assessing water quality.

Use support methodology has changed significantly since the 1999 revision of the Catawba River Basinwide Water Quality Plan.

1. In the 1999 basinwide plan use support assessments, surface waters were rated fully supporting (FS), partially supporting (PS), not supporting (NS) and not rated (NR). FS was used to identify waters that were meeting their designated uses. Impaired waters were rated PS and NS, depending on their degree of degradation. NR was used to identify waters lacking data or having inconclusive data. *The 2002 Integrated Water Quality Monitoring and Assessment Report Guidance* issued by the EPA requested that states no longer subdivide the Impaired category. In agreement with this guidance, North Carolina no longer subdivides the Impaired category and rates waters as Supporting, Impaired, Not Rated or No Data. These ratings refer to whether the classified uses of the water (such as water supply, aquatic life and primary/secondary recreation) are being met.

2. Use support methods have been developed to assess ecosystem health and human health risk through the development of use support ratings for five categories: aquatic life, fish consumption, recreation, shellfish harvesting and water supply. These categories are tied to the uses associated with the primary classifications applied to NC rivers, streams and lakes. A full description of the classifications is available in the DWQ document titled: *Classifications and Water Quality Standards Applicable to Surface Waters of North Carolina*. Detailed information on use support methods is provided in Appendix III and summary tables in Section A, Chapter 3.

Notable Themes in the 2004 Catawba River Basinwide Water Quality Plan

The varied nature of the topics discussed below demonstrates the wide range of stressors leading to water quality degradation in the Catawba River basin. In most cases of documented water quality declines, a combination of many stressors has produced general habitat degradation (see Section A, Chapter 4, Part 4.13). Very rarely can water quality declines be attributed to a single pollutant. In some way, every person, industry, farm and municipality in the basin impacts water quality. Therefore, every resident of the basin must play a role in management strategies designed to protect and restore the streams, lakes and rivers in the basin.

Population Growth and Urbanization

Pressure from a rapidly expanding human population is the driving force behind water quality degradation in the Catawba River basin. The overall population of the basin, based on the percent of the counties that are partially or entirely in the basin, is 1,170,512. This makes the Catawba River basin the most populated river basin in the state. The basin population is

expected to grow by more than 696,000 people by 2020. Population growth for the basin as a whole, from 1990 to 2000, is estimated at 18.5 percent, the fastest growing basinwide population in the state. The estimated population density is 356 persons/square mile, versus the average statewide population density of 163 persons/square mile, making this also the most densely populated basin in the state.

The expanding population is accompanied by an increase in urban and built-up land cover that increases the rate and intensity of polluted stormwater runoff. In the Catawba River basin, urban and built-up land increased by 52.0 percent from 1982 to 1997 according to the Natural Resources Inventory. Land cover is discussed in detail in Section A, Chapter 2, Part 2.5.

The impacts on rivers, lakes and streams as development surrounding metropolitan areas consumes neighboring forests and fields can be significant and permanent if stormwater runoff is not controlled. Greater numbers of homes, stores and businesses require greater quantities of water. Growing populations not only require more water, but they also lead to the discharge and runoff of greater quantities of waste and pollutants into the state's streams and groundwater. Thus, just as demand and use increases, some of the potential water supply is lost (Orr and Stuart, 2000).

The current effects of this growth on water quality can be seen in the map of Impaired streams in the Catawba River basin (Figure A-3). Sparsely developed watersheds and those contained in the national forests of the northwestern portion of the basin generally contain streams with high water quality, excellent aquatic species populations, and are supporting their designated uses. Water quality declines dramatically in streams in the central and southern watersheds, where urbanization is focused around urban centers and interstate corridors.

Population growth trends and the accompanying impacts to water quality are discussed in Section A, Chapters 2 and 4.

Reducing Stormwater Runoff Impacts

Stormwater runoff is a primary carrier of nonpoint source pollution in both urbanized and rural areas. The impact of stormwater runoff is particularly severe in developing areas where recently graded areas are highly susceptible to erosion, and urbanized areas where stormwater runoff is rapidly channeled through curb and gutter systems into nearby streams.

There are many different stormwater programs administered by DWQ. One or more of these programs affect many communities in the Catawba River basin. The goal of the DWQ stormwater discharge permitting regulations and programs is to prevent pollution from entering the waters of the state via stormwater runoff. These programs try to accomplish this goal by controlling the source(s) of pollutants. These programs include NPDES Phase I and II, HQW/ORW stormwater requirements, and requirements associated with the Water Supply Watershed Program. Local governments that are or may be affected by these programs are presented in Table A-27.

The Importance of Local Involvement

As the Basinwide Planning Program completes its third cycle of plan development, there are many efforts being undertaken at the local level to improve water quality. The Division of Water Quality encourages local agencies and organizations to learn about these efforts and determine

how similar programs may be implemented in their own watersheds. Funding organizations are also encouraged to seek out these programs and support them whenever possible.

Local organizations and agencies are able to combine professional expertise and local knowledge not present at the state and federal level. This allows groups to holistically understand the challenges and opportunities of local water quality concerns. Involving a wide array of people in water quality projects also brings together a range of knowledge and interests and encourages others to become involved and invested in these projects. Working in cooperation across jurisdictional boundaries and agency lines opens the door to additional funding opportunities and eases the difficulty of generating matching or leveraged funds. This will potentially allow local entities to do more work and be involved in more activities because their funding sources are diversified. The most important aspect of these local endeavors is that the more localized the project, the better the chances for success.

The collaboration of local efforts is key to water quality improvements, and DWQ applauds the foresight and proactive response by locally based organizations and agencies to potential water quality problems. There are many excellent examples of local agencies and groups using these cooperative strategies throughout the state. Please refer to Section C, Chapter 1, Parts 1.4 and 1.5 for a discussion of local initiatives already underway in the Catawba River basin.

Chain Lakes Management Challenges

One of the most prominent hydrologic features of the Catawba River basin is the series of Duke Power hydropower impoundments along the river's mainstem, widely referred to as the Catawba River Chain Lakes (Figure A-4). This chain-like configuration presents a unique challenge to water quality management. The outflows from upstream reservoirs, as well as inputs from the surrounding watershed and direct discharges to the lakes themselves, influence the water quality in each impoundment. Therefore, water quality issues in a particular impoundment cannot be addressed without first considering the influence of watershed conditions, upstream water quality, and releases from upstream reservoirs. Downstream impacts must also be evaluated before any management decisions are implemented.

Impacts to water quality can also be magnified by the presence of a reservoir. Dams significantly slow the flow of water and create conditions not present in riverine systems. These conditions increase nutrient availability and give algae more time to grow. In theory, a reservoir may suffer the symptoms of excessive nutrient and sediment inputs, while a river receiving the same level of pollutants may not. In this case, the river may be moving pollutants quickly downstream, thus, preventing localized water quality problems. Similarly, two reservoirs receiving the same pollutant load may not exhibit the same symptoms. For example, one reservoir may have many small, isolated coves that allow algae to grow for extended periods of time, while another reservoir may simply act like a wide, slow-flowing portion of a river with a continuous exchange of water and minimal algal growth.

In some ways, the prosperity enjoyed by this area of North Carolina can be linked to the presence of these dams. In addition to power generation, the lakes are now popular recreational areas and provide drinking water to the local population. The lakes are also contributing to a recent economic expansion as new residents seek lakefront housing. For statistics on the lakes, see Table A-14.

Unfortunately, several of the Catawba Chain Lakes are suffering impacts from a number of stressors. Table 1 provides a brief summary of primary stressors affecting the impoundments. The cumulative effects of these stressors have resulted in nutrient enrichment impairment of Lake Rhodhiss and Lake Wylie. The stressors leading to these impairments are many and varied and the management strategies necessary to restore them must be equally broad in scope. Detailed discussion of these lakes can be found in Section A, Chapter 4, Part 4.7.

Table 1 Lake Stressor Summary

Assessment Parameter	Lake James	Lake Rhodhiss	Lake Hickory	Lookout Shoals	Lake Norman	Mountain Island	Lake Wylie
% Saturation DO	N	**Y**	**Y**	**Y**	N	N	**Y**
Algae	N	**Y**	**Y**	N	N	N	**Y**
Chlorophyll *a*	N	**Y***	N	N	N	N	**Y**
pH	N	**Y**	N	N	N	N	N
Sediment	N	**Y**	**Y**	N	N	**Y**	N
Taste & Odor	N	**Y**	**Y**	N	N	N	N
Macrophytes	**Y**	N	**Y**	**Y**	**Y**	**Y**	N

"**Y**" Indicates parameter is noted within the impoundment.

* Standard exceeded in less than 10% of readings.

Hydropower Relicensing

Part I of the Federal Power Act (FPA) requires that Duke Power's Catawba-Wateree Project has a license in order to operate. Relicensing is the process for obtaining a new license for a hydro project after the existing license expires. Duke Power's current license for the project was issued in 1958 and will expire in 2008.

The FPA provides the Federal Energy Regulatory Commission (FERC) exclusive authority to license all nonfederal hydro projects that are located on navigable waterways or federal lands. Licenses are normally issued for a period of 30-50 years and contain conditions that regulate project operations. To continue to operate project facilities after the expiration of an existing license, a licensee must obtain a new license for its project.

The conditions in the new license are expected to change the way these hydro stations and reservoirs are operated, primarily via rebalancing how the limited water supply is utilized. Changing how this finite resource is used will benefit some interests and negatively impact others. The final decision as to the terms and conditions of the new license is almost exclusively reserved to the FERC and certain government resource agencies, including DWQ through the 401 Certification process, with mandatory conditioning authority. However, there are many opportunities for other organizations, governmental entities and individual stakeholders to substantially influence these decisions. In the end, Duke Power hopes to obtain a new license to operate the project in a manner that comprehensively balances the use of the resource in the best overall public interest (Duke Energy Corporation, 2003).

Challenges Related to Achieving Water Quality Improvements

The long-range mission of basinwide planning is to provide a means of addressing the complex problem of planning for increased development and economic growth while maintaining, protecting and enhancing water quality and intended uses of the Catawba River basin's surface waters. Within this basinwide plan, DWQ presents management strategies and recommendations for those waters considered Impaired or that exhibit some notable water quality problems.

To achieve the goal of restoring Impaired waters throughout the basin, DWQ must work more closely with other state agencies and stakeholders to identify and control pollutants. The costs of restoration will be high, but several programs exist to provide funding for restoration efforts. These programs include the Clean Water Management Trust Fund, the NC Agricultural Cost Share Program, the Ecosystem Enhancement Program, and the federally funded Environmental Quality Incentives Program, among many others.

Due to increasing development, there are significant challenges that must be faced in balancing economic growth with the protection of water quality in the Catawba River basin. Point source impacts on surface waters can be measured and addressed through the basinwide planning and permitting processes. Nonpoint sources of pollution can be identified through the basinwide plan, but actions to address these impacts must be taken at the local level. Such actions should include: development and enforcement of local erosion control ordinances; requirement of stormwater best management practices for existing and new development; development and enforcement of buffer ordinances; and land use planning that reduces impacts on natural resources. This basinwide plan presents many water quality initiatives and accomplishments that are underway within the basin. These actions provide a foundation on which future initiatives can be built.

General Nonpoint Source Recommendations

Below is a list of potential management strategy components that should be applied in some combination to restore any impaired water and protect unimpaired waters in the basin. Because of uncertainties regarding how individual remedial actions cumulatively impact stream conditions and in how the aquatic community will respond to improvements, the intensity of management effort necessary to bring about a particular degree of biological improvement cannot be established in advance. The types of actions needed to improve biological conditions can be identified, but the mix of activities that will be necessary – and the extent of improvement that will be attainable – will only become apparent over time as an adaptive management approach is implemented. There is no silver bullet restoration strategy that can be applied to all degraded waters. DWQ encourages adaptive management strategies that can be adjusted to fit the characteristics of a degraded waterbody and feasibility requirements for the individuals and organizations implementing it. The extremely high restoration cost estimates listed below serve notice to the importance of protecting unimpaired waterbodies so that restoration is not necessary.

Actions one through five are important to restoring and sustaining aquatic communities in a watershed, with the first three recommendations being the most important.

1. **Feasible and cost-effective stormwater retrofit projects should be implemented throughout the watershed to mitigate the hydrologic effects of development** (increased stormwater volumes and increased frequency and duration of erosive and scouring flows).

This should be viewed as a long-term process. Although there are many uncertainties, costs in the range of $1 million per square mile can probably be anticipated.

   a. Over the short-term, currently feasible retrofit projects should be identified and implemented.
   b. In the longer term, additional retrofit opportunities should be implemented in conjunction with infrastructure improvements and redevelopment of existing developed areas.
   c. Priorities should include evaluating the retrofit potential of existing instream impoundments.
   d. Grant funds for these retrofit projects may be available from EPA initiatives, such as Section 319 funds or the North Carolina Clean Water Management Trust Fund.

2. **A watershed scale strategy to address toxic inputs should be developed and implemented, including a variety of source reduction and stormwater treatment methods.** As an initial framework for planning toxicity reduction efforts, the following general approach is proposed:
   a. Implementation of available BMP opportunities for control of stormwater volume and velocities. As recommended above to improve aquatic habitat potential, these BMPs will also remove toxics from stormwater.
   b. Development of a stormwater and dry weather sampling strategy in order to facilitate the targeting of pollutant removal and effectiveness of source reduction practices.
   c. Implementation of stormwater treatment BMPs, aimed primarily at pollutant removal, at appropriate locations.
   d. Development and implementation of a broad set of source reduction activities focused on: reducing nonstorm inputs of toxics; reducing pollutants available for runoff during storms; and managing water to reduce storm runoff.
3. **Stream channel restoration activities should be implemented in target areas, in conjunction with stormwater retrofit BMPs, in order to improve aquatic habitat.** Before beginning stream channel restoration, a geomorphologic survey should be conducted to determine the best areas for stream channel restoration. Additionally, it would probably be advantageous to implement retrofit BMPs before embarking on stream channel restoration, as restoration is probably best designed for flows driven by reduced stormwater runoff. Costs of approximately $200 per foot of channel should be anticipated (Haupt et al., 2002; and Weinkam et al., 2001). Grant funds for these retrofit projects may be available from federal sources, such as EPA's Section 319 funds or state sources including North Carolina Clean Water Management Trust Fund.
4. Actions recommended above (e.g., stormwater quantity and quality retrofit BMPs) are likely to reduce nutrient/organic loading and its impacts to some extent. Activities recommended to address this loading include the identification and elimination of illicit discharges; education of homeowners, commercial applicators, and others regarding proper fertilizer use; street sweeping; catch basin clean-out practices; and the installation of additional BMPs targeting BOD and nutrient removal at appropriate sites.
5. Prevention of further channel erosion and habitat degradation will require effective post-construction stormwater management for all new development in the study area.
6. Effective enforcement of sediment and erosion control regulations will be essential to the prevention of additional sediment inputs from construction activities. Development of improved erosion and sediment control practices may be beneficial.

7. Watershed education programs should be implemented and continued by local governments with the goal of reducing current stream damage and preventing future degradation. At a minimum, the program should include elements to address the following issues:
    a. redirecting downspouts to pervious areas rather than routing these flows to driveways or gutters;
    b. protecting existing woody riparian areas on all streams;
    c. replanting native riparian vegetation on stream channels where such vegetation is absent; and reducing and properly managing pesticide and fertilizer use.

DWQ plans to further evaluate Impaired waters in the Catawba River basin in conjunction with other agencies that address nonpoint source pollution issues and develop management strategies for a portion of these Impaired waters for the next *Catawba River Basinwide Water Quality Plan* (2009).

Point Source Pollution

For streams degraded by point source pollution, this plan presents a management strategy to reduce the impacts from that pollutant source. As a standard permitting policy, DWQ does not allow new nutrient loads from point sources to Impaired waters until a TMDL is complete for that waterbody. In addition, applications for new or expanding nutrient discharges to all mainstem reservoirs in the Catawba River basin must be accompanied by an analysis of nutrient related impacts using a DWQ approved nutrient response model for the receiving reservoir.

Addressing Waters on the State's 303(d) List

Section 303(d) of the Clean Water Act requires states to identify waters not meeting the criteria determined by their designated uses. EPA must then provide review and approval of the listed waters. A list of waters not meeting standards is submitted to EPA biennially. Waters placed on this list, termed the 303(d) list, require the establishment of total maximum daily loads (TMDLs) intended to guide the restoration of water quality. EPA issued guidance in August 1997 that called for states to develop schedules for developing TMDLs for all waters on the 303(d) list within 8-13 years.

The 303(d) list and accompanying data are updated as the basinwide plans are revised. In some cases, the new data will demonstrate water quality improvement and waters may receive a better use support rating. These waters may be removed from the 303(d) list when water quality designated uses are attained. In other cases, the new data will show a stable or decreasing trend in overall water quality resulting in the same, or lower, use support rating. Attention remains focused on these waters until water quality designated uses are met. Currently, there are 77 waters listed on the *North Carolina's 2002 Integrated 305(b) and 303(d) Report* in the Catawba River basin. These waters were listed for a variety of stressors including: turbidity, fecal coliform and copper contamination, habitat degradation and unknown causes.

Assessment of Water Quality in the Catawba River Basin

Biological, chemical and physical monitoring data collected between September 1997 and August 2002 were used to assign use support ratings in this basin.

Aquatic Life
The aquatic life use support category is applied to all waters in North Carolina. Therefore, this category is applied to all 3,048.3 freshwater miles and 50,764.2 freshwater acres in the Catawba River basin. Approximately 24.5 percent of stream miles (746.0 miles) and 100.0 percent of freshwater acres (50,764.2 acres) were monitored. There were 174.2 (23.4%) Impaired stream miles and 5,868.1 (11.6%) Impaired freshwater acres.

Fish Consumption
Like the aquatic life use support category, the fish consumption category is also applied to all waters in the state. Fish consumption use support ratings are based on fish consumption advice or specific advisories issued by the NC Department of Health and Human Services (NCDHHS). If a limited fish consumption advice, advisory or a no consumption advisory is posted at the time of use support assessment, the water is rated Impaired.

The NCDHHS has developed regional fish consumption advice (all waters south and east of I-85) for certain fish species shown to have elevated levels of mercury in their tissue. Only a small portion of the Catawba River basin lies south of I-85 (lower Mecklenburg, Union and Gaston counties). Due to the presence of dams that impede fish travel throughout the Catawba River basin, only those waters draining to and entering the mainstem Catawba below I-85 and are not impeded by dams are considered Impaired/Evaluated. Thus, 704.0 miles and 4,395 acres are impaired in the Catawba River basin. All other waters are rated No Data. Because this impairment is based on regional advice rather than site specific data, these waters will not appear on the 303(d) per EPA guidance.

Recreation
Like the aquatic life use support category, the recreation category is also applied to all waters in the state. Approximately 7.7 percent of stream miles (235.1 miles) and 81.3 percent of freshwater acres (41,255.1 acres) were monitored by DWQ. There were 24.4 stream miles and no freshwater acres Impaired in the recreation use support category.

Water Supply
There are 997.7 stream miles and 47,081.9 currently classified for water supply in the Catawba River basin. All water supply waters are Supporting on an Evaluated basis based on reports from DEH regional water treatment consultants.

Impaired Waters
The Table 2 presents Impaired waters (in all categories) in the Catawba River basin that were monitored by DWQ within the last five years. The use support category for which a waterbody is Impaired is indicated in the table. Descriptions of Impaired segments, as well as problem parameters, are outlined in Appendix III. Management strategies for each waterbody are discussed in detail in the appropriate subbasin chapter. Maps showing current use support ratings for waters in the Catawba River basin are presented in each subbasin chapter in Section B.

Table 2 Monitored Impaired Waters within the Catawba River Basin (as of 2003)

Name	Assessment Unit	Class	Subbasin	Miles	Acres	Category
Youngs Fork (Corpening Creek)	11-32-1-4b	C	03-08-30	1.9		Aquatic Life
Youngs Fork (Corpening Creek)	11-32-1-4a	C	03-08-30	3.6		Aquatic Life
Jacktown Creek	11-32-1-4-1	C	03-08-30	2.4		Aquatic Life
North Fork Catawba River	11-24-(2.5)b	B- TR	03-08-30	3.5		Aquatic Life
Irish Creek	11-35-3-(2)b	WS-III	03-08-31	3.0		Aquatic Life
Hunting Creek	11-36-(0.7)	WS-IV	03-08-31	7.4		Aquatic Life
CATAWBA RIVER (Rhodhiss Lake below elevation 995)	11-(37)	WS-IV & B CA	03-08-31		1,848.5	Aquatic Life
Lower Creek	11-39-(0.5)a	C	03-08-31	8.8		Aquatic Life
Lower Creek	11-39-(0.5)b	C	03-08-31	5.1		Aquatic Life
Lower Creek	11-39-(6.5)	WS-IV	03-08-31	6.8		Aquatic Life
Spainhour Creek	11-39-3	C	03-08-31	4.7		Aquatic Life
McGalliard Creek	11-44-(3)	WS-IV CA	03-08-31	3.9		Aquatic Life
Horseford Creek	11-54-(0.5)	WS-IV	03-08-32	0.4		Aquatic Life
Lower Little River	11-69-(0.5)	C	03-08-32	14.0		Aquatic Life
McDowell Creek	11-115-(1.5)b	WS-IV	03-08-33	2.9		Aquatic Life
McDowell Creek	11-115-(1.5)a	WS-IV	03-08-33	4.4		Aquatic Life
Killian Creek	11-119-2-(0.5)b	C	03-08-33	3.2		Aquatic Life
CATAWBA RIVER (Lake Wylie below elevation 570)	11-(122)	WS-IV & B CA	03-08-34		601.1	Aquatic Life
CATAWBA RIVER (Lake Wylie below elevation 570) North Carolina portion	11-(123.5)	WS-V & B	03-08-34		3,418.5	Aquatic Life
Long Creek	11-120-(2.5)	WS-IV	03-08-34	11.3		Aquatic Life & Recreation
Sugar Creek	11-137a	C	03-08-34	0.3		Aquatic Life
Irwin Creek	11-137-1	C	03-08-34	11.8		Aquatic Life
Little Sugar Creek	11-137-8a	C	03-08-34	5.5		Aquatic Life
McAlpine Creek (Waverly Lake)	11-137-9c	C	03-08-34	4.6		Aquatic Life
Clark Creek (Shooks Lake)	11-129-5-(0.3)b	C	03-08-35	14.3		Aquatic Life
Clark Creek (Shooks Lake)	11-129-5-(0.3)c(1)	C	03-08-35	2.4		Aquatic Life
Henry Fork	11-129-1-(12.5)a	C	03-08-35	10.3		Aquatic Life

Maiden Creek	11-129-5-7-2-(1)	WS-II	03-08-35	4.9		Aquatic Life
Maiden Creek (Including Maiden reservoir below elevation 842)	11-129-5-7-2-(2.5)	WS-II CA	03-08-35	2.1		Aquatic Life
Clark Creek	11-129-5-(9.5)	WS-IV	03-08-35	1.8		Aquatic Life
Indian Creek	11-129-8-(6.5)b	C	03-08-35	6.0		Aquatic Life
Catawba Creek	11-130c	C	03-08-37	4.9		Aquatic Life
Crowders Creek	11-135c	C	03-08-37	3.3		Aquatic Life & Recreation
Crowders Creek	11-135g	C	03-08-37	1.5		Aquatic Life & Recreation
Crowders Creek	11-135d	C	03-08-37	7.3		Aquatic Life & Recreation
Crowders Creek	11-135a	C	03-08-37	1.9		Recreation
Crowders Creek	11-135b	C	03-08-37	3.1		Recreation
Crowders Creek	11-135e	C	03-08-37	1.5		Recreation
Crowders Creek	11-135f	C	03-08-37	1.4		Recreation
Abernethy Creek	11-135-4b	C	03-08-37	1.8		Aquatic Life
Blackwood Creek	11-135-7	C	03-08-37	4.4		Recreation
Sixmile Creek	11-138-3	C	03-08-38	8.8		Aquatic Life