Aquatic Resources

Introduction

The Land and Resource Management Plan (Forest Plan) for the Monongahela National Forest includes expectations to monitor and evaluate Forest management activities in order to satisfy multiple legal requirements and policy directives. Monitoring and evaluation can help identify effects to resource conditions as they relate to management activities and other influences. Results from monitoring efforts can be used to recommend changes to management practices that will help meet Forest Plan goals.

Monitoring and evaluation of aquatic resources are critical for determining the degree of success in pursuing activities in a manner that considers Forest Plan standards and guidelines to help achieve Forest Plan objectives, goals, and desired conditions specific to aquatic resources. Since revision of the 1986 Forest Plan was recently completed during 2006, current and future efforts to monitor aquatic resources will increasingly strive to address the pertinent issues contained in the new 2006 Forest Plan for the Monongahela National Forest.

2006 Accomplishments

The Forest conducted various activities during the 2006 fiscal year for the purpose of managing aquatic resources in accordance with Federal and State laws, USDA and Forest Service policies, and Forest Plan direction. Table AQ-1 identifies 2006 accomplishments that are most directly related to aquatic resources management on the Forest.

Table AQ-1. Aquatic Resource Accomplishments in 2006

Products, Services, and Activities	Quantity
Streams on National Forest lands (miles)	2,753
Streams on National Forest lands not meeting WV State water quality standards (miles)	250
Lakes on National Forest Lands (acres)	250
Temporary Summer Employees (college students employed for aquatic resources inventory/monitoring)	3
Randolph County Outdoor Education Programs (aquatic modules)	18
Free Fishing Clinics and Other Aquatic Resources Outreach (events)	5
Mid-scale Resource Analyses – Watershed Assessments	0
Project Level Aquatic Resources Coordination (Biological Evaluations reported in WFRP)	38
Stream Channel Restoration (sites) - * see Lower Williams River Restoration Project	*
Lower Williams River AML Restoration and Road Decommissioning Project (acres)	65
Limestone Treatment to Acid Impaired Streams (miles)	10
Limestone Treatment to Acid Impaired Lakes (acres)	38
Cooperative Administrative Studies (Participating Agreements)	5

Some of the accomplishment items listed in the table represent products and services provided for public benefits. Some accomplishments include environmental assessments that provide a foundation for making land management decisions; these decisions are typically made after considering potential effects to the condition and trend for aquatic resources. Other accomplishments consist of implementing specific land management activities designed to address issues related to the condition and trend of the aquatic environment. Environmental assessments and project implementation are often the culmination of various forms of monitoring efforts that range from specialist reviews of site-specific conditions to watershed-scale surveys and evaluations of ecosystems processes and conditions. The following is a general summary of accomplishments from 2006 that are most-directly related to aquatic resources management on the Forest.

Streams on National Forest Lands

The National Hydrography Dataset (1:24000) was used to determine there are 2,753 miles of mapped streams on NFS lands. The 2004 list of water quality impaired stream segments (Section 303d requirements in the Clean Water Act) developed by the West Virginia Department of Environmental Protection was used to determine there are 250 miles of streams on NFS lands that are identified as water quality impaired. Watersheds on the Forest that possess one or more water quality impaired stream segments include the North Fork South Branch Potomac River, South Branch Potomac River, Tygart Valley River, Shavers Fork, Red Creek, Gandy Creek, Blackwater River, Dry Fork, Cheat River, Greenbrier River, Deer Creek, Anthony Creek, Gauley River, Williams River, Cranberry River, and Cherry River. Source indicators that identify water quality impairment include benthicmacro-invertebrate bioassessments, aluminum, fecal colliform, mercury, and pH. This state list of water quality impaired stream segments is updated bi-annually. Listed streams that occur on NFS lands will be tracked in future Forest monitoring reports as appropriate.

Interpretation and Education Outreach – Randolph Co. Outdoor Education Program

The Randolph County Board of Education initiated an outdoor education program in September 2001 in partnership with local, state, and federal government agencies as well as local private groups and institutes. The program is intended to give fifth grade students in Randolph County a hands-on learning experience related to the diverse natural and cultural resources found in the central Appalachian Mountains. One of the key components of the program is aquatic ecosystems study. Objectives of the aquatic curriculum are to develop a basic understanding and appreciation for the fundamental processes, functions, and diversity of aquatic ecosystems and introduce students to ways that humans can influence aquatic environments.

Each session of the program occurs over a period of 2 days and 1 night. Given the number of schools and students involved, there are 4 sessions during fall and 4 sessions during spring of each school year. In 2006, about 400 fifth grade students from 5 schools participated in the program. Prior to going through the program, students are pre-tested on their knowledge of the natural resource topics that are covered in the program. The same test is administered to students after they complete the program. Test scores indicate the program is successful in

expanding students' knowledge of natural resources management. In addition, there are less tangible but no less valuable benefits associated with the collaboration of various agencies, local businesses, and organizations that pool their resources to make the program a success.

Interpretation and Education Outreach – Fishing Clinics/Aquatic Resources Outreach

The Monongahela National Forest works annually with West Virginia Division of Natural Resources and numerous other partners to co-sponsor 4 youth fishing clinics that are held at various locations around the Forest. Each fishing clinic provides an opportunity for participants to learn and practice fishing techniques while trying to land hatchery-raised trout. In addition, these events typically offer opportunities to participate in other activities associated with fishing including fly fishing techniques, catch-and-release ponds, fish cleaning stations, and casting contests. The Forest also cooperates with the U.S. Fish and Wildlife Service to co-sponsor a 5th environmental outreach event on the Forest at White Sulphur Springs. In 2006, more than 1,000 youth registered at fishing clinics held at Lake Buffalo, Horseshoe Bend, Summit Lake, Bowden Fish Hatchery, and White Sulphur Springs.

Lower Williams River Abandoned Mine Land Restoration and Road Decommissioning

Underground coal mining and associated transportation and loading facilities in the southwestern part of the Monongahela National Forest during the early 1900s and again in the 1960s was followed by abandoned mines. Timber harvesting activity also occurred and contributed to a legacy of damage in the lower Williams River watershed. A 2700-acre area was degraded by failing road drainage, un-maintained sediment pond discharges, uncontrolled discharges from mine openings, and discarded and abandoned mine debris. Together, these conditions contributed to erosion and sediment delivery to streams in the Williams River system, a popular trout fishery, and created physical public safety hazards in an area frequented by outdoor recreationists.

In 1999, a partnership between the Forest Service and the West Virginia Division of Environmental Protection, Office of Abandoned Mine Land and Reclamation began the lengthy process of planning to restore land in the area of abandoned mines and historic timber harvesting activities in the lower Williams River. Reclamation designs were implemented in phases over the period from 2003 through 2006 using mineral and geology, watershed, and Knutsen-Vandenberg funding provided by Forest Service National Commitment ECAP/AML funding, Forest program dollars, and receipts from past timber sales in the area.

All 17 open coal mine portals were physically closed to public entry, 12 of which had bat-friendly barricades installed to continue to provide and enhance habitat for a variety of bat species, including a listed sensitive bat. Uncontrolled and erosive drainage from 7 mine sites and a former coal loading area was dispersed to infiltrate soils in forested areas or otherwise re-directed to constructed armored channels and spillways. Protruding metal was removed, and trash and debris were collected and disposed of properly.

Sixteen miles of roads were decommissioned using techniques that provide for dispersion and infiltration of runoff to more closely mimic natural runoff patterns, eliminate sources of soil

erosion and stream sedimentation, and restore productivity to nearly 60 acres of land. In the process, 85 stream channel sites and associated floodplains were rehabilitated by removing road steam crossings. Nearly 2 acres of waste rock was re-shaped, covered with topsoil, and seeded. The project removed more than one acre of non-native invasive plants including autumn olive and common reed. Areas of soil disturbed by the reclamation work were seeded with non-invasive and native species. In addition, the Forest has made arrangements to work with West Virginia Division of Natural Resources during the 2007 fiscal year to plant native shrubs in selected areas that were rehabilitated as part of this project.

Limestone Treatment of Acidified Surface Waters

The West Virginia Division of Natural Resources has developed a procedure to directly apply limestone sands to surface waters to help mitigate some of the effects of acid deposition. Typically, a prescribed grain size and quantity of limestone sand is placed directly in and near a target stream channel with a dump truck. Some of the limestone sand is immediately entrained in the stream flows. The remaining pile of limestone is incrementally washed into the target stream section during heavy run-off events that create high stream flows at various times of the year. As the limestone sand works its way through the stream system, it gradually dissolves, which increases the buffering capacity of the water and helps counteract the effects of acid deposition on the pH of the surface water.

In 2006, the Forest implemented the limestone fines treatment of Glade Run and Lambert Run in the Shavers Fork watershed and Coats Run in the North Fork Cherry River watershed. About 60 tons of limestone sand was added to Glade Run, 40 tons were delivered to Lambert Run, and 45 tons of limestone sand was added to Coats Run. Glade Run and Lambert Run are tributaries to the Shavers Fork, which is a popular recreational fishing destination on the Forest. Limestone sand treatment to Glade Run and Lambert Run helps mitigate the effects of acid deposition in these tributary streams as well as the Shavers Fork. Coats Run is treated with limestone sand primarily to help mitigate against the effects of acid deposition on the water quality of the 38 acre Summit Lake (although secondary benefits are realized in downstream reaches of Coats Run and the North Fork Cherry River below Coats Run). Summit Lake serves as a popular recreational fishery that supports a seasonal coldwater fishery (stocked trout) as well as a warm water fishery that includes bass.

Monitoring and Evaluation

The 2006 revision of the Forest Plan for the Monongahela National Forest identifies legal and regulatory requirements for monitoring the implementation of the Forest Plan. In addition, the Forest Plan establishes a monitoring framework and suggests prioritization criteria to help focus monitoring efforts. Monitoring efforts pursued for aquatic resources during 2006 help address various monitoring elements described in the Forest Plan. Table AQ-2 lists the focused aquatic resource monitoring efforts conducted during 2006.

Following are descriptions, evaluations, conclusions, and recommendations associated with monitoring efforts conducted during fiscal year 2006 for aquatic resources.

Table AQ-2. Aquatic Resource Monitoring Efforts in 2006

Monitoring Activity	Quantity
Stream Water Chemistry (sites)	98
Aquatic Ecological Unit Inventory and Monitoring – Aquatic Habitats/Populations (sites)	23
Aquatic Organism Passage Inventory/Assessments (sites)	0
Summer Stream Temperature Regime (sites)	41
East Gauley Mountain Monitoring – Aquatic Habitats/Populations/Sediment (streams)	7

Monitoring Item 1. Stream Water Chemistry

Water chemistry is one of the fundamental building blocks for aquatic ecosystems. The significance of water chemistry is perhaps no more apparent than in aquatic systems composed of diverse geology particularly when these systems are subjected to effects from acid deposition. Watersheds across the Monongahela National Forest (MNF) are composed of a wide range of surficial geologies that have variable capacities for neutralizing acid inputs.

The Monongahela National Forest has routinely been conducting semi-annual Forest-wide monitoring of water chemistry properties in streams across the Forest since 2001. The Forest developed a monitoring protocol that is designed to expand on existing knowledge of various relationships that exist between water chemistry and various environmental factors including geologic composition of contributing watershed areas, rates of acid deposition into the system, and associated aquatic communities. This protocol was employed again during 2006.

Monitoring Item 1b. Evaluation, Conclusions and Recommendations

Evaluation: Water samples were collected at 98 stream locations during the fall of 2006. Stream sample locations and site specific results of chemical analyses are available in the project file. Water samples are specifically targeted for collection during spring and fall periods to help establish a range of baseline water chemistry conditions across the various watersheds. Absent acid mine drainage influences, water samples collected at lower base flow conditions during the late summer to early fall period are typically expected to exhibit higher pH and ANC values due to the greater influence of groundwater on stream flows. Water samples collected at higher flow conditions (particularly as a consequence of snow-melt) during the spring period are typically expected to exhibit worse water chemistry conditions due to a more direct contribution to stream flow from precipitation laden with acid loads (*i.e.* acid rain). Given the tendency of water chemistry to depend upon flow conditions and the period of collection, establishing a range of water chemistry conditions at each location was preferred over single point sampling to allow for broader utility of the data in monitoring long-term trends.

Water samples were analyzed for measures of pH, acid neutralizing capacity (ANC), Na, K, Mg, Ca, Cl, NO3, SO4, and conductivity because they are helpful in monitoring the sensitivity of aquatic ecosystem to acid deposition. For example, harmful effects to certain aquatic organisms begin to occur as pH values fall below 6.0; detrimental effects occur to most aquatic organisms as pH falls below 5.0. Also, ANC values less than 50 indicate a

system is acid sensitive, values between 0 and 25 suggest systems likely experience episodic acidification during storms, and negative ANC values indicate systems are already acidic.

Results of the stream water sampling continue to demonstrate a high degree of variability for stream water chemistry across the Forest. In the fall 2006 dataset, measures of pH ranged from 3.74 in Yellow Creek to 8.09 in Briggs Run. Measures of ANC ranged from -140.79 in Yellow Creek to 1713.13 in Briggs Run, although ANC could not be run on 7 of the samples due to unforeseen complications. It should be noted that chemistry results for some sites were influenced by applications of limestone sands applied by the State of West Virginia.

Conclusions: The Forest continues to observe a close association between stream water chemistry and a classification system of lower, moderate, or higher level of acid sensitivity for geologic formations across the Forest. Poor water chemistry buffering largely occurs in aquatic systems that have contributing watershed areas dominated by geologies classified as higher acid sensitivity and in some cases dominated by moderate and higher acid sensitive geologies (see Figure 1). Based on data from aquatic population assessments, water chemistry appears to be the most limiting factor for stream productivity in these poorly buffered watersheds.

Recommendations:
It is recommended that stream water chemistry continue to be monitored semi-annually across the Forest. This information is needed to enhance the level of understanding of the current range of stream water chemistry inherent to the Forest's diverse aquatic ecosystems and is vital to assessing long-term trends across the Forest.

Monitoring Item 2. Aquatic Ecological Unit Inventory and Monitoring

The riverine system consists of rivers and streams that form a stream network. Fluvial processes of the river system are primary mechanisms for various landscape processes and functions such as soil erosion, downstream transport of materials, and aquatic habitat development and maintenance. The riverine system has three hierarchical levels nested within a watershed units and its stream network: valley segments, stream reaches, and channel units. Understanding conditions and trends at each hierarchical level can prove valuable for making informed land management decisions to achieve desired goals and objectives.

The Monongahela National Forest has developed a survey protocol that is designed to expand on existing knowledge of conditions and trends associated with the physical and biological components of aquatic ecosystems across the Forest. During 2006, the Forest employed a summer watershed crew to conduct surveys of valley segments, stream reaches, and channel units in various stream systems across the Forest.

Monitoring Item 2. Evaluation, Conclusions and Recommendations

Evaluation: Forest Service crews conducted surveys associated with valley segment and stream reach classifications, aquatic habitat inventory, and fish population assessments in 23 stream segments during the summer of 2006. Physical dimensions were measured for flood

prone area, stream channels, and aquatic habitats. Measurements were also taken of stream substrates in riffle habitats and gravel bar formations to assess channel stability. The overall composition of stream substrates and aquatic cover attributes were visually assessed. Large woody debris was inventoried according to size classifications. Fish population assemblages were sample to determine species composition and other population characteristics. Specific locations and preliminary results of these surveys are available in the Forest's aquatic resources database but synthesis and interpretation of this information is in progress.

Recommendations:
Aquatic ecological unit inventory and monitoring data is an important element to understanding the condition, trend, processes, and functions of aquatic ecosystems and the contributing watershed areas. It is recommended that aquatic ecological unit inventories be continued to obtain a more complete dataset for evaluating land management proposals and assessing trends. The utility of this information will not be fully realized until a more complete dataset is available and synthesized for interpretative value.

Monitoring Item 2a. Summer Stream Temperature Regime

Stream temperature is one environmental factor that can influence the species composition of aquatic communities and the relative health of individual populations that inhabit aquatic ecosystems. Stream temperature affects various bio-physical and physicochemical properties associated with aquatic environments (such as respiration rates and dissolved oxygen capacity) which can place physiological constraints on the type and abundance of aquatic organisms that could otherwise be supported by aquatic habitats.

Aquatic ecosystems typically exhibit signature stream temperature patterns or stream temperature regimes that develop in response to prominent and persistent associations between land form, climate patterns, watershed hydrologic properties, and other watershed characteristics. Aquatic inhabitants frequently exhibit life history strategies that are adapted to specific stream temperature regimes and the associated environmental cues which function to initiate behavior critical for sustaining population viability for aquatic species over the long term. Changes to stream temperature regimes can result in modifications to aquatic species composition as well as population vigor.

Stream temperatures can be influence by many factors. Various watershed and stream conditions that can influence stream temperatures have been considerably altered from their reference conditions across the Forest. Although various disturbance mechanisms continue today, the most pronounced changes to stream temperatures on the Forest arguably occurred as a result of timbering activities during the late 1800's and early 1900's. Results from the timbering activities and ensuing fires effectively eliminated forest cover, increased road densities, accelerated erosion and stream sedimentation rates, reduced natural stream channel integrity, and degraded aquatic habitat composition and quality. Changes to any one of these conditions could trigger alterations to stream temperatures. The substantial changes that occurred to watersheds and stream conditions suggest stream temperature regimes likely experienced significant alterations. Changes to stream temperature regimes likely included

increased daily temperature fluctuations as well as increased extent and duration of summer maximum temperatures and possibly winter minimum temperatures.

Monitoring Item 2a. Evaluation, Conclusions and Recommendations

Evaluation: The Forest has been deploying temperature logging devices annually in streams across the Forest since 2003. Temperature loggers were placed at 48 stream locations from June to October, 2006. However, only 41 of these devices were retrieved as the others could not be relocated. Since native brook trout (*Salvelinus fontinalis*) are identified as the aquatic management indicator species in the Forest Plan for the Monongahela National Forest, stream temperature data are summarized in Table AQ-3 for optimal, approaching lethal maximum, and exceeding lethal maximum stream temperature ranges described for brook trout (Raleigh 1982).

Table AQ-3. Stream Temperature Monitoring during 2006

Stream Name	Elevation	Acres	Max 24-hr Min	Max 24-hr Max	Days w/Averages Exceeding Optimal	Days w/Max Approaching Lethal Maximum	Days w/Max Exceeding Lethal Maximum
Clover Run - Left Fork	1600	12935.3	20.27	23.33	47	5	0
Clover Run - Left Fork	1960	1413.1	20.17	21.89	26	0	0
Clover Run - Right Fork	1600	4848.4	20.98	23.04	37	3	0
Hobson Run	2020	964.2	18.87	20.79	13	0	0
Sutton Run	2960	1881.9	17.99	19.56	7	0	0
Elk River	2480	41223.7	20.20	24.03	38	7	0
Elk River	2630	35827.8	18.84	20.98	27	0	0
Big Run (Dry Fork Elk-River)	2600	1314.4	18.53	19.51	7	0	0
Props Run	2640	756.9	18.51	19.58	5	0	0
Big Run (Abb Run Elk River)	2500	1149.1	18.27	18.82	5	0	0
Upper Two Spring Run	3000	984.0	15.87	16.58	0	0	0
Gandy Creek	3000	19106.7	20.32	23.18	29	5	0
Gandy Creek	3360	10178.4	17.94	23.76	15	5	0
Swallow Rock Run	3100	1393.6	16.84	17.42	0	0	0
Big Run (Gandy Creek)	3280	2516.2	17.32	19.08	0	0	0
Big Run (Gandy Creek)	3500	1240.0	16.82	17.99	0	0	0
Glady Fork	2000	40304.1	22.59	25.89	59	28	3
Glady Fork	2440	30743.9	28.39	36.63	58	34	15
Two Spring Run	2120	961.6	18.22	18.82	2	0	0
Five Lick Creek	2440	756.9	18.51	20.22	7	0	0
Daniels Creek	2820	2280.0	19.25	21.53	14	0	0
East Fork Glady	3000	3200.4	18.63	20.32	7	0	0
Mike Run	2000	887.6	19.37	21.03	14	0	0

Stream Name	Elevation	Acres	Max 24-hr Min	Max 24-hr Max	Days w/Averages Exceeding Optimal	Days w/Max Approaching Lethal Maximum	Days w/Max Exceeding Lethal Maximum
Hile Run	1890	1652.5	19.72	21.01	19	0	0
Maxwell Run	1670	2388.0	19.48	20.56	14	0	0
Maxwell Run	2000	1601.7	18.63	19.91	7	0	0
Twelvemile Run	2005	862.7	19.06	20.79	16	0	0
Horseshoe Run	1650	27602.2	21.84	26.01	54	23	2
Laurel Fork	2040	38405.2	22.49	26.77	62	41	6
Laurel Fork	3000	12049.3	19.63	23.04	25	3	0
Laurel Fork	3360	2444.6	19.53	28.15	39	32	18
Beaverdam Run	2870	1930.0	19.39	26.74	24	24	8
Bennett Run	2870	1333.8	20.29	25.09	36	15	1
Camp Five Run	3360	1359.1	16.49	20.06	0	0	0
Big Run-trib 1 (NFSBPR)	3710	280.0	17.89	23.06	12	6	0
Big Run-trib 3 (NFSBPR)	3670	205.4	16.92	21.63	1	0	0
Laurel Run (Old Field Fk)	2680	1847.3	18.63	20.06	8	0	0
Laurel Run, N Fk (Old Field Fk)	3000	570.6	17.51	18.27	0	0	0
Slaty Fork	2960	2130.2	17.82	18.94	3	0	0
Crooked Fork	3120	2622.8	18.89	22.87	32	2	0
Laurel Run (Haddix Run-Shavers Fork)	1790	1863.9	19.91	21.37	22	0	0

Conclusions: Stream temperature data show that 26 of 41 stream sites monitored during 2006 clearly possess summer stream temperatures that would support year-round brook trout populations. Seven stream sites monitored exhibit summer stream temperatures that are lethal to brook trout. Fifteen sites monitored exhibit maximum stream temperatures that approach lethal levels during the summer. Summer stream temperatures remained within the optimal range for brook trout in only six of the 41 stream sites monitored.

It is important to note that although stream temperature monitoring devices can accurately capture stream temperature measurements where the device is placed, it is possible for stream's to possess micro-habitats associated with areas of groundwater up-welling or springs where water temperatures may deviate from those recorded. In this way, aquatic biota may be able to seek micro-habitats within streams that would otherwise appear to be intolerable.

Recommendations: Assessment of watershed characteristics and other environmental conditions may help explain variation in stream temperature data collected from different streams. Preliminary assessment of stream temperature datasets from various watersheds across the Forest suggest significant correlations exist between stream temperature and watershed characteristics that include watershed area, stream length, stream elevation, percent forested area (for both riparian area and watershed area), percent wetlands, road density (for both riparian area and watershed area), and stream crossing density.

It is recommended that stream temperature monitoring continue annually across the Forest. In addition, a more complete analysis of the developing stream temperature dataset is needed to help decipher variation in the dataset. An increased understanding in the relationships between various environmental conditions and stream temperature characteristics can help identify opportunities to better manage watersheds for desired conditions.

Monitoring Item 3. East Gauley Mountain Aquatic Monitoring

An aquatic monitoring plan was developed in 1997 as part of a resolution agreement for the timber sale associated with the East Gauley Mountain lawsuit. This plan was initiated to assess impacts associated with the implementation of land management activities within the East Gauley Mountain area. Various monitoring activities associated with this plan have been conducted since the summer of 1997 when baseline monitoring data was initially collected. Fish population surveys are among the monitoring activities that have occurred since 1997, and these surveys were conducted by Forest Service crews again during the summer of 2006.

Monitoring Item 3. Evaluation, Conclusions and Recommendations

Evaluation: Fish populations surveys were conducted in Laurel Run, Props Run, Big Run (Props OA), Chimney Rock Run, and Big Run (Rocky Point OA) during late July and early August, 2006. Data for trout biomass consists of the combined biomass estimates for any combination of brook trout (*Salvelinus fontinalis*), rainbow trout (*Oncorhynchus mykiss*), and brown trout (*Salmo trutta*) that were sampled during the 2006 surveys. Other fish species that were sampled in at least 1 of the streams include blacknose dace (*Rhinichthys atratulus*), longnose dace (*Rhinichthys cataractae*), and mottled sculpin (*Cottus bairdii*).

Conclusions: Preliminary assessment of monitoring information on wild trout populations in the East Gauley Mountain area shows an erratic trend in total trout biomass from 1997 through 2006. The pattern suggests highly unstable population dynamics in the sample streams. The erratic pattern in the trend data suggests cause-effect type conclusions are not possible at this time. Monitoring aquatic resources in this area is an ongoing effort, and a more complete analysis and report is anticipated.

Recommendations:
Various aspects of the monitoring plan for the East Gauley Mountain area should be continued in an attempt to document a more stable trend in fish population dynamics. A detailed report of the aquatic monitoring efforts and findings for the East Gauley Mountain area should be prepared following monitoring efforts in 2010.