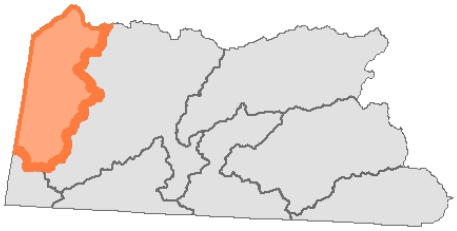
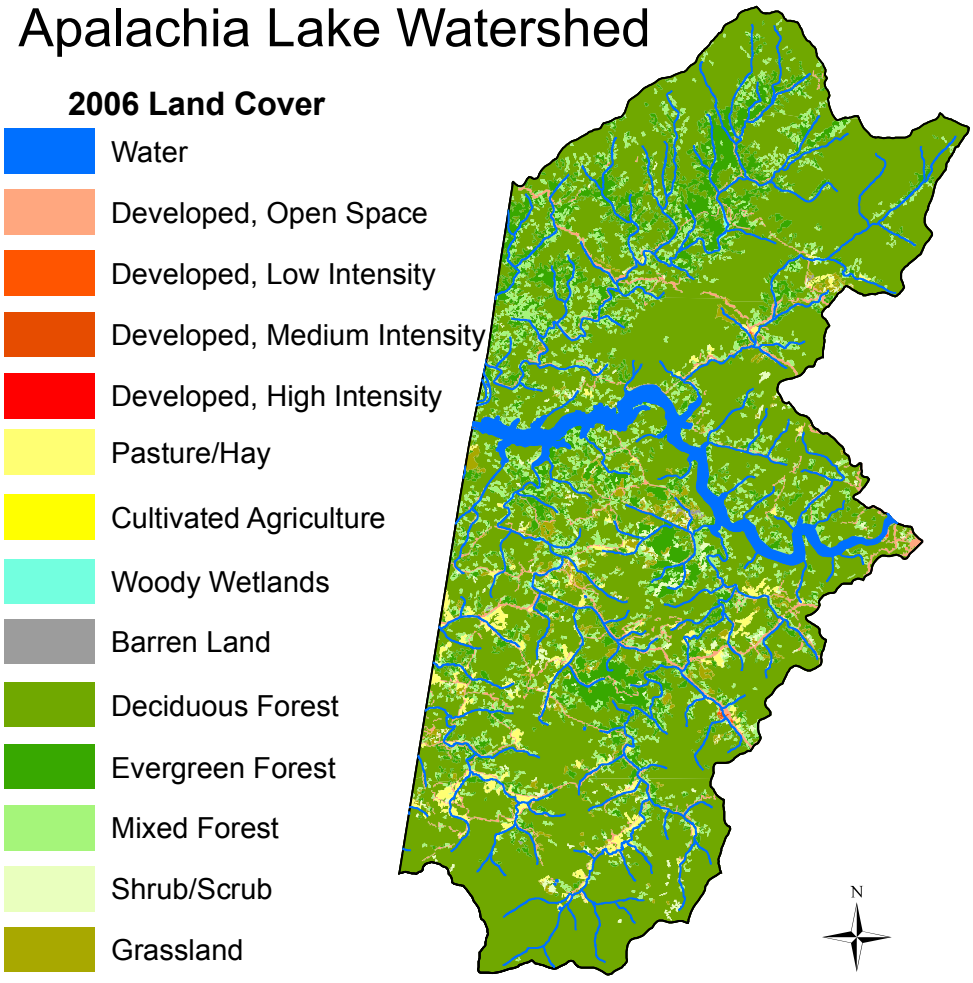
Apalachia Lake Watershed



HUC 0602000209

Includes: Major Streams- Shuler Creek, Shoal Creeks, Camp Creek & Apalachia Lake/Hiwassee River



Watershed at a Glance

County:
Cherokee

Municipalities:
none

Population:
2000:..... 1335
2010:..... 1781

Area Estimates
Square miles.....80.5

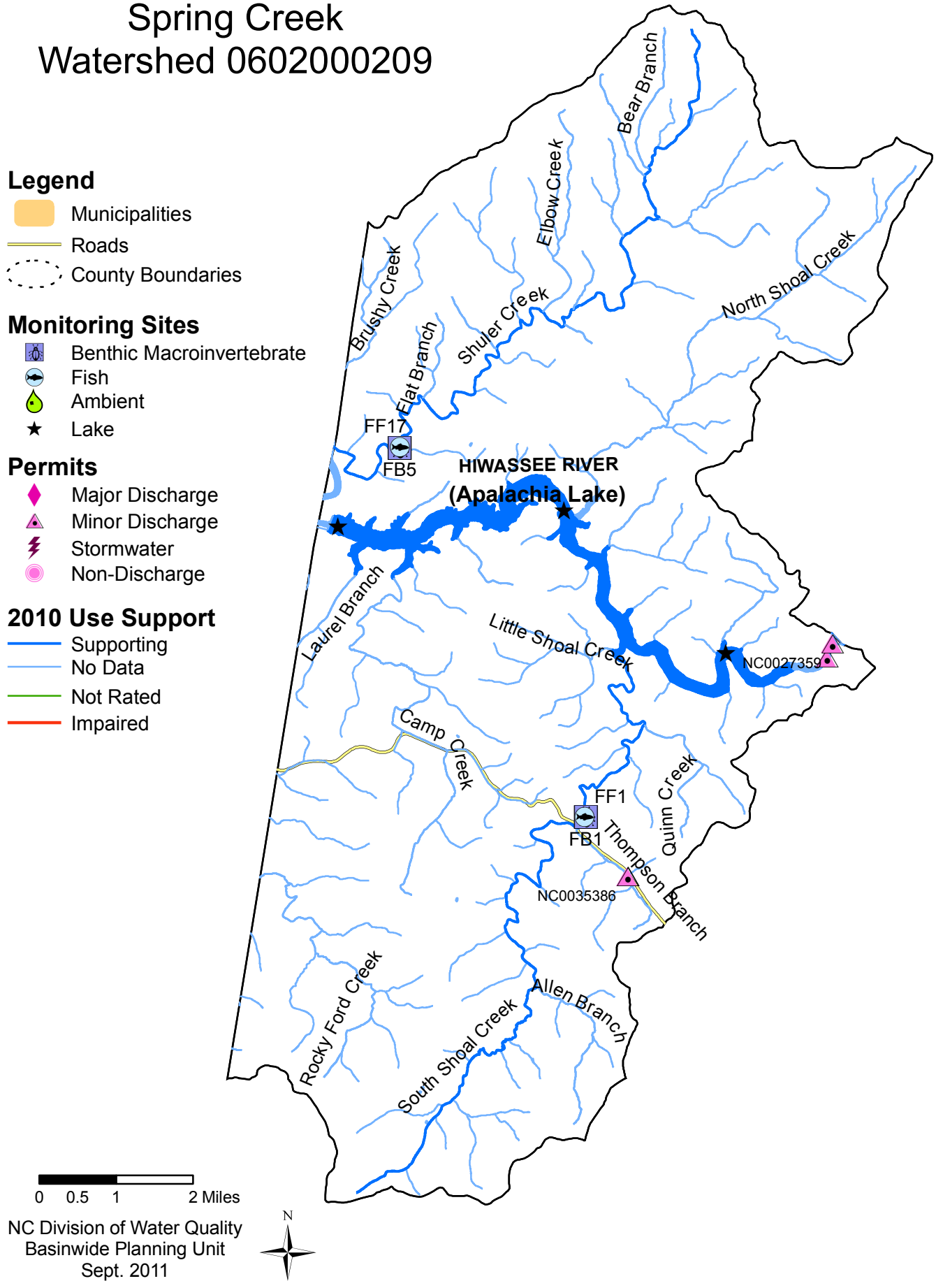
Land Cover:
Open Water.....2%
Developed.....3%
Forested.....91%
Scrub 1%
Agriculture.....3%

Ecoregions:
Broad Basins, Southern Metasedimentary Mtns.

Permitted Facilities:
NPDES
Wastewater Discharge 3
Wastewater Nondischarge 0
Stormwater 0

Animal Operations 0

Figure 1-1: Apalachia Lake / Spring Creek Watershed Map

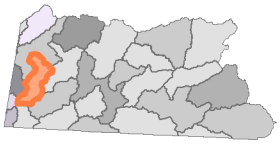


Protection and Restoration Opportunities

The following section provides more detail about specific streams where special studies have occurred or stressor sources information is available. Within this document biological sample site IDs ending in an "F" denote fish community and a "B" denote macroinvertebrate community. Specific stream information regarding basinwide biological samples sites are available in Appendix 1B. Use support information on all monitored streams can be found in Appendix 1A. Detailed maps of each of the watersheds are found in Appendix 1C or by clicking on the following small maps.

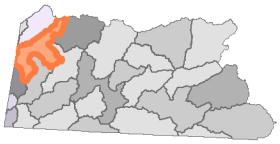
To assist in identifying potential water quality issues citizens, watershed groups and resource agencies can gather and report information through our Impaired and Impacted Stream/ Watershed survey found here: : http://portal.ncdenr.org/web/wq/ps/bpu/about/impactedstreamssurvey.

South Shoal Creek (HUC 060200020901)



South Shoal Creek [AU# 1-77] drains a primarily forested watershed of approximately 19 square miles. The creek, which is classified for trout protection was last sampled by DWQ in 2004 (FF1 & FB1), Those samples indicated excellent water quality. The fish site is a regional reference site and downstream NC Wildlife Resources Commission classifies the creek as Wild Trout Waters. Cherokee County Hiwassee Dam School (NC0035386) is located along Thompson Branch, which is a tributary to South Shoal Creek. The school's discharge effluent has had low pH resulting several violations for not meeting effluent limits.

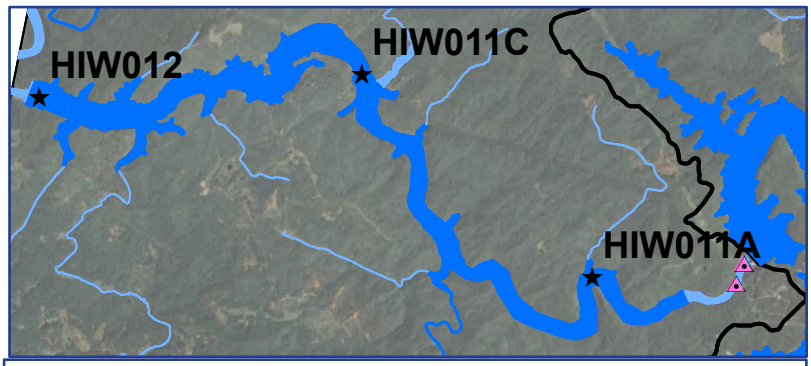
Apalachia Lake-Hiwassee River (HUC 060200020902)



This subwatershed drains from Hiwassee Lake to form Apalachia Lake. The main tributaries to Apalachia Lake besides the Hiwassee River include: South Shoal Creek, North Shoal Creek and Camp Creek. North Shoal [AU# 1-80] and Camp Creeks are not monitored by DWQ. On the Hiwassee River [AU# 1-(74)] below the dam there are two minor dischargers (NC0023001 Bear Paw WWTP, NC0027359 TVA) and one non-dicharge permit for Bear Paw WWTP (WQCSD0439).

Camp Creek [AU# 1-82] is not sampled by DWQ, but the Cherokee County Soil and Water Conservation District conducted a stream survey to evaluate water quality impacts. Cherokee SWCD noted a sediment and erosion problem in the creek and identified pasture, road construction, and residential construction activities as possible sources. Water quality stressors originating from these sources include stream channelization, livestock access, and development. Less than twenty percent of the agricultural land is operating with a conservation plan. Agricultural landowners are encouraged to work with Cherokee SWCD to develop and implement conservation plans for the remaining agricultural land in the watershed. The following are also needed to reduce the sediment and erosion problem: streambank stabilization/repair, establishing vegetated riparian buffers, livestock exclusion, off-stream livestock watering locations, and better erosion and sediment control enforcement for new construction.

Apalachia Lake [AU#1-(75)] is a run-of-the-river reservoir located within the Nantahala National Forest in the mountains of western North Carolina. It is situated immediately downstream of Hiwassee Lake on the Hiwassee River. The lake is owned by the Tennessee Valley Authority and was constructed int the 1940's to generate hydroelectric power. Apalachia Lake has a maximum depth of 118 feet, a length of 10 miles and 31 miles of shoreline at full pool level.



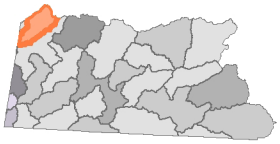
Apalachia Lake Station Locations

The drainage area covers 651,300 acres of mountainous terrain, almost all forested. Apalachia Lake is classified B (suitable for swimming).

DWQ staff sampled Apalachia Lake in 3 locations monthly from May through September 2009. Secchi depths ranged from 2.4 meters to 5.5 meters, indicating very good water clarity. Dissolved oxygen concentrations and pH values were similar to those previously observed in this lake. The thermocline generally occurred at a depth of four to five meters at the sampling site near the dam (HIW012). Nutrient concentrations were low with the exception of nitrite plus nitrate, which was elevated. Chlorophyll a concentrations were also low, with the mean lake values ranging from <1.0 to 3.7 µg/L. Based on the calculated NCTSI scores, Apalachia Lake was determined to have low biological productivity (oligotrophic).

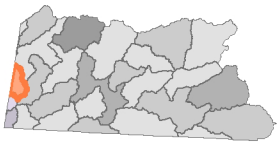
Apalachia Lake was monitored by Tennessee Valley Authority in 2006 and 2008 and was determined to have an Ecological Health Rating of Good. The chlorophyll a rating in both years was Good and this rating has fluctuated between Poor, Fair and Good (www.tva.com/environment/ecohealth/apalachia2.htm).

Shuler Creek (HUC 060200020903)



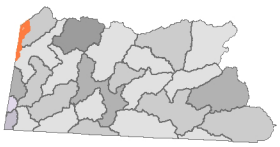
Shuler Creek [AU# 1-86] drains ~19 square miles of which almost all of it is part of Nantahala National Forest and is hatchery supported trout waters. The creek was sampled for macroinvertebrates in 2004 resulting in an Excellent rating and the fish community was sampled (FF17) in 2009 resulting in a Good rating. Two hellbender salamanders were also found indicating high water quality.

Turtletown Creek (HUC 060200020904)



Rocky Ford Creek [AU# 1-89] is the only creek in this subwatershed that is in North Carolina. The creek flows north out of Pack Mountain Significant Natural Heritage Area and then west into Tennessee. This subwatershed contains a 9.4-acre rare shrub-emergent wetland. The wetland is heavily beaver influenced with abundant open water, shrub islands, and emergent marsh areas. NC Natural Heritage Program and Wildlife Resources Commission personnel have identified some amphibians of interest including peepers, a wood frog, a spotted salamander egg mass, and possibly a red-spotted newt adult. Mountain chorus frogs have been identified on two different occasions. The Land Trust for the Little Tennessee is working with the landowner to conserve this unique wetland. There are no DWQ monitoring stations in this subwatershed.

Towee Creek-Hiwassee River (HUC 060200020907)



In the North Carolina portion of this subwatershed is small including 0.6 miles of the Hiwassee River [AU# 1-(85)] from Apalachia Dam to North Carolina-Tennessee State Line and 1.9 mi. of Brushy Creek [AU# 1-88]. There are no DWQ water quality monitoring stations in this subwatershed.

Table 1-1: Notable Waterbodies

Stream Name	AU#	Class.	Stressor	Source	Status	Actions Needed
Allen Branch	1-77-2	C	habitat degradation, sedimentation	development, forestry	Impacted	M, R, F, S&E
Camp Creek	1-82	C	habitat degradation, sedimentation	agriculture, livestock access,residential	Impacted	P, Ag, BMPs
Thompson Branch	1-77-2	C	pH, habitat degradation, sedimentation	WWTP, development, stormwater	Impacted	M,R,SC, BMPs

AU # = Assessment Unit # or stream segment/reach

Class. = Classification (e.g., C, S, B, WS-I, WS-II, WS-III, WS-IV, WS-V, Tr, HQW, ORW, SW, UWL)

Stressor = chemical parameters or physical conditions that at certain levels prevent waterbodies from meeting the standards for their designated use.(e.g., low/high DO, nutrients, toxicity, habitat degradation, etc.)

Source = development, agriculture, WWTP, NPS,

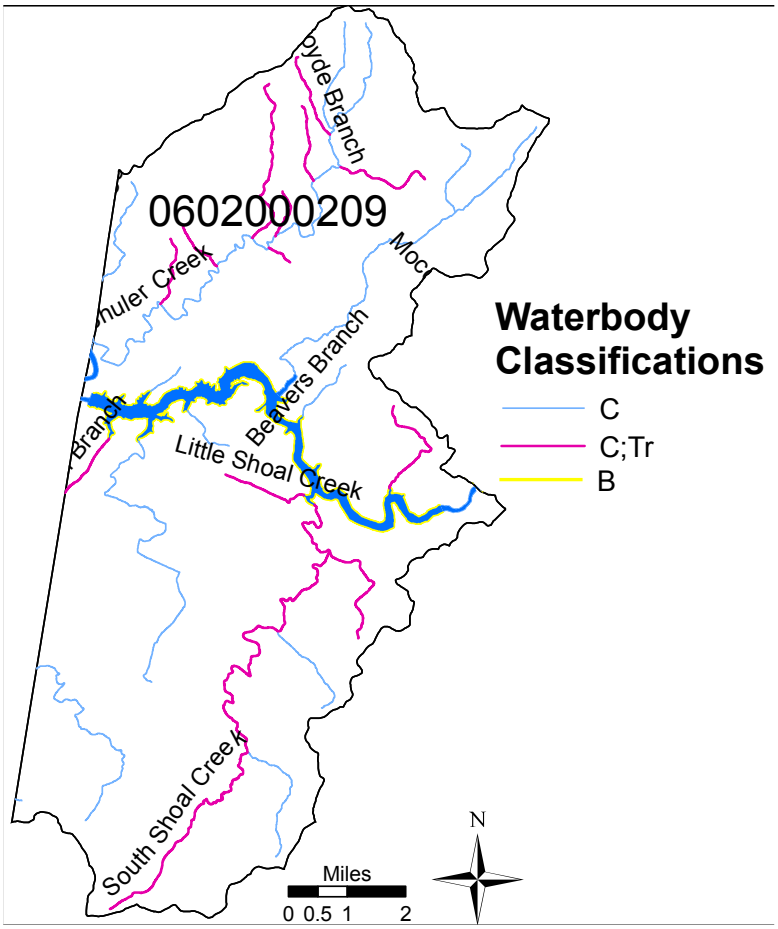
Status = Impaired, Impacted, Supporting, Improving

Actions Needed: R=restoration, P=conservation protection, SC=stormwater controls, BMPs, F=forestry BMPs, Ag=agriculture BMPs, S&E=soil and erosion control, M=monitoring,

Waterbody Classifications

All surface waters in the state are assigned at least one primary classification and they may also be assigned one or more supplemental classifications, Figure 1-2 . A list of classifications with a description of their requirements can be found in Chapter 2 of the **Supplemental Guide to Basinwide Planning**.

Figure 1-2: Stream Classifications



Trout (Tr) Waters

Trout (Tr) waters are protected for natural trout propagation and maintenance of stocked trout. There are no watershed development restrictions associated with the trout classification; however, the NC Division of Land Resources (DLR), under the NC Sedimentation and Pollution Control Act (SPCA), has requirements to protect trout streams from land disturbing activities. Under G.S. 113A-57(1), "waters that have been classified as trout waters by the Environmental Management Commission (EMC) shall have an undisturbed buffer zone 25 feet wide or of sufficient width to confine visible siltation within the twenty-five percent of the buffer zone nearest the land-disturbing activity, whichever is greater." The Sedimentation Control Commission, however, can approve land-disturbing activities along trout waters when the duration of the disturbance is temporary and the extent of the disturbance is minimal. This rule applies to unnamed tributaries flowing to the affected trout water stream. Further clarification on classifications of unnamed tributaries can be found under Administration Code 15A NCAC 02B .0301(i)(1) or the following link: **http://portal.ncdenr.org/c/document_library/get_file?uuid=f4f0b765-7892-4681-885b-95f4ef26f806&groupId=38364.**