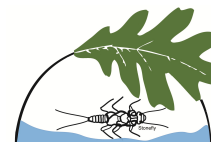
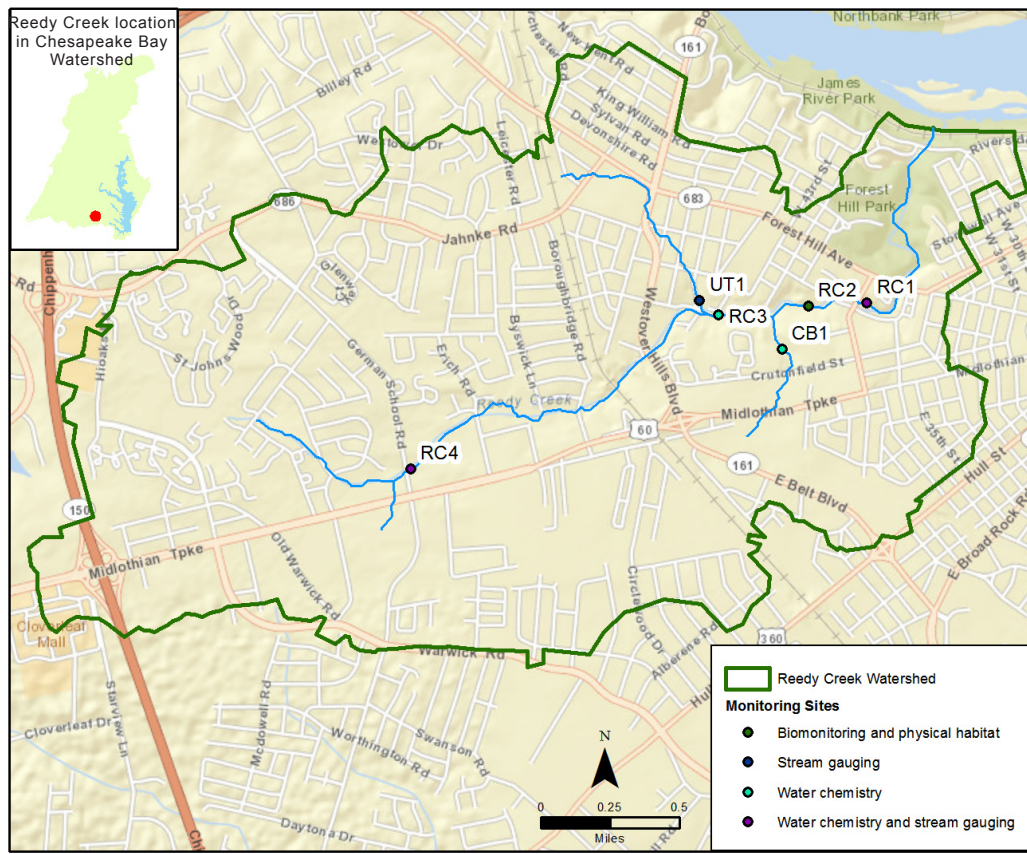


# 2010-2012 Reedy Creek Report Card



Reedy Creek Coalition.org



Reedy Creek is a 3.68-mile stream with an approximate 2,800 acre watershed located in the City of Richmond, Virginia.

This report card summarizes water quality results based on data collected from 2010 to 2012. As shown in the table below, bacteria (*Escherichia coli*) grades score consistently low, while dissolved oxygen (DO) and pH grades are relatively high. In 2010, Total Phosphorus (TP) grades were very low while Total Nitrogen (TN) grades were moderate. There was not enough data collected in 2011 and 2012 for TN and TP grades.

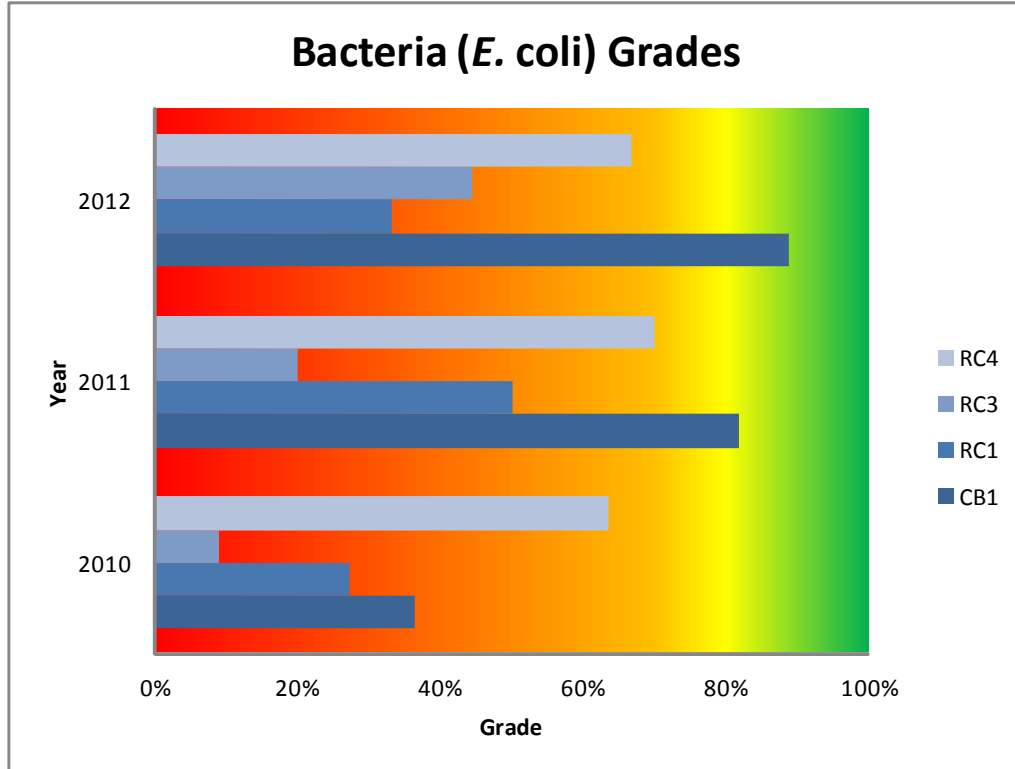
Data is collected once a month at water chemistry monitoring sites and twice a year at biomonitoring sites. Starting in 2013, stream height and discharge will be measured at stream gauging sites.

	Site	Ecological Health Indicators				Human Health Indicator	
		DO	pH	TN	TP	Bacteria	
2010	CB1	100% A+	90% A-	49% C	28% D	36%	Very Poor
	RC1	91% A	100% A+	73% B	38% D+	27%	Very Poor
	RC3	80% A-	100% A+	67% B	28% D	9%	Very Poor
	RC4	64% B-	60% B-	78% B+	32% D	64%	Poor

	Site	Ecological Health Indicators				Human Health Indicator	
		DO	pH	TN	TP	Bacteria	
2011	CB1	91% A	58% C+	n/a	n/a	82%	Moderate
	RC1	100% A+	100% A+	n/a	n/a	50%	Very Poor
	RC3	80% A-	82% A-	n/a	n/a	20%	Very Poor
	RC4	64% B-	92% A	n/a	n/a	70%	Moderately Poor

	Site	Ecological Health Indicators				Human Health Indicator	
		DO	pH	TN	TP	Bacteria	
2012	CB1	100% A+	89% A	n/a	n/a	89%	Moderate
	RC1	100% A+	100% A+	n/a	n/a	33%	Very Poor
	RC3	78% B+	100% A+	n/a	n/a	44%	Very Poor
	RC4	78% B+	100% A+	n/a	n/a	67%	Poor

# Reedy Creek is a Degraded Urban Stream



*Escherichia coli* (*E. coli*) is a type of bacteria that occurs in the intestines and feces of warm blooded mammals. It is used as an indicator species to determine the level of fecal waste contamination which can also carry other bacteria, viruses and protozoans that can cause illnesses in humans.

Reedy Creek has consistently low *E. coli* scores. The only site that has scored above 80% (in the moderate category) is CB1, which is on the Crooked Branch tributary. Reedy Creek has been listed on the Virginia Department of Environmental Quality (DEQ) 303(d) impaired waters list for *E. coli* impairment since 2002. Causes of this impairment can range from broken sanitary sewer lines to waste from pets, waterfowl and other wildlife.

These sources, which are referred to as nonpoint sources, are carried to the stream via stormwater runoff. Impervious cover (i.e. parking lots, buildings, and roads) in urbanized areas increases the potential of stormwater runoff. Excess nutrients (Total Nitrogen and Total Phosphorus), sediments, and other pollutants are also carried to Reedy Creek via stormwater runoff. These pollutants degrade the water quality in the stream, sometimes to a point where certain fish and other aquatic life cannot survive. Results from 2010 and 2011 biomonitoring show that Reedy Creek is severely impaired for aquatic life. The average Virginia Stream Condition Index Score was 35.4, which is well below the threshold value of 60. Furthermore, there are not many pollution sensitive bugs found in Reedy Creek, which is quite typical for urban and suburban streams. Excess nutrients fuel the growth of too much algae and upset the balance of food resources in the stream. Excess sediment fills in the spaces around and under rocks that are the preferred habitat of many bugs. Frequent high flows of stormwater carry rocks and sand and gravel downstream, scour the stream bed, and destroy habitat.

Stonefly



Photo by Robert Henricks

Pollution-Sensitive Bug

Dragonfly



Photo by Robert Henricks

Somewhat Pollution-Sensitive Bug

Midge



Photo by Robert Henricks

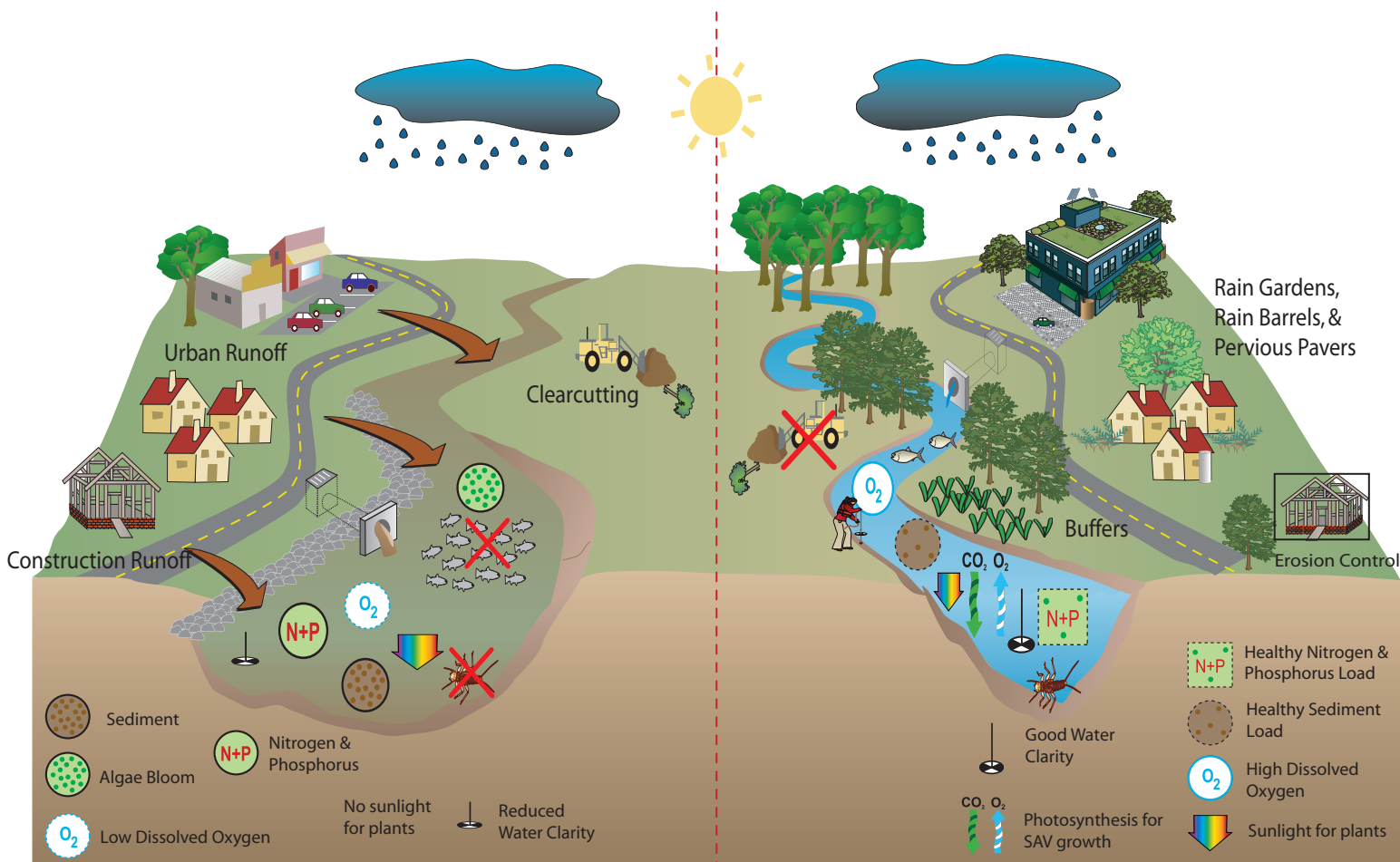
Pollution-Tolerant Bug

A random sample of aquatic bugs is used to determine the Virginia Stream Condition Index score. The more pollution-sensitive bugs, the higher the score.



Monitoring site RC2, where biomonitoring data is collected.

# Everyone has an Impact on Reedy Creek



Symbols courtesy of the Integration and Application Network ([ian.umces.edu/symbols/](http://ian.umces.edu/symbols/)).

## Watershed Stresses

Stormwater runoff from impervious surfaces such as parking lots, roofs, and roads, is carried to streams during rain events. The increased volume of water erodes stream banks, removes habitat for aquatic animals, and causes flooding in urban systems.

Sediments are either carried to the streams via stormwater runoff or come from eroding stream banks. Excess sediment reduces the clarity of the water, which reduces the amount of sunlight available for growth of aquatic vegetation. Excess sediment also makes it difficult for aquatic bugs and fish to survive.

Nitrogen and Phosphorus are also carried to streams via stormwater runoff. Potential sources of these nutrients are fertilizers, leaky septic systems, and damaged sewage lines. Excess nutrients can result in algae blooms, which decrease the amount of dissolved oxygen in the water, thus stressing fish populations.

## Watershed Solutions

Residents can plant trees and install rain barrels, rain gardens, and BayScapes to help reduce the amount of polluted runoff leaving their property.

Commercial properties can also reduce their impervious surfaces by installing rain gardens, pervious pavers, and green roofs.

Watershed residents can also participate in community efforts to restore tree buffers along streams.

Community volunteers can participate in water monitoring activities and streamwalks. Two substantial sanitary sewer leaks contributing to the *E. coli* problem in Reedy Creek were detected and fixed as a result of such volunteer efforts.

# Reedy Creek Coalition



*Volunteers provide landscaping suggestions that will help improve water quality.*

The Reedy Creek Coalition is an all-volunteer organization (under the umbrella of the Enrichmond Foundation) committed to restoring the health and beauty of Reedy Creek through education, training, and collaboration with all residents and users of the Reedy Creek Watershed and its natural resources. Healthy watersheds are an integral part of vibrant, healthy communities. The Coalition strongly encourages water conservation and other landscape practices that help restore the natural ecosystems that contribute to a healthy watershed.

With the help of the Alliance for the Chesapeake Bay, the Reedy Creek Coalition has developed a free audit program for homeowners, which evaluates properties for their impact on the watershed and offers tips on reducing stormwater and pollution runoff. There is also a financial incentive program (funded through grants to the Alliance for the Chesapeake Bay) for implementing stormwater runoff reduction practices, such as rain gardens, BayScapes, pervious pavers, and tree plantings.

To learn more about the Reedy Creek Coalition and upcoming events, visit [www.reedycreekcoalition.org](http://www.reedycreekcoalition.org) or like "Reedy Creek Coalition" on Facebook.

## How the Grades are Calculated

Report card grades are based on data collected by RiverTrends citizen scientists. Volunteers are trained to collect and test water samples according to procedures outlined in our DEQ approved Quality Assurance Project Plan (QAPP), which sets standards for data collection that assure the data are comparable to data collected by universities and government agencies. Nutrient and *E. coli* data were analyzed at a state certified lab.

Grades were calculated using the Mid-Atlantic Tributary Assessment Coalition protocols outlines in the "Sampling and data analysis protocols for Mid-Atlantic non-tidal tributary indicators". Data from 2010 to 2012 was used in this report card. Volunteers continue to collect data, and have also started taking stream flow measurements.



*Volunteers collect water quality data at RC3.*

This report was funded by Chesapeake Bay Restoration Fund and Richmond Community Foundation grants to the Alliance for the Chesapeake Bay (Alliance). The Alliance coordinates RiverTrends, a regional volunteer water quality monitoring program. The Reedy Creek Coalition participates in the RiverTrends program. For more water quality data collected through these efforts, please visit the Alliance's Database at <http://www.alliancechesbay.org/monitoring/data/site.cfm>. To find out how to become a water quality monitor, visit [www.allianceforthebay.org](http://www.allianceforthebay.org). For more information on the Reedy Creek Coalition, please visit [www.reedycreekcoalition.org](http://www.reedycreekcoalition.org).



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