

# THE RIVER RUNS

News from the Cowpasture River Preservation Association

## State of the CRPA Report

On May 3, 2008 the following report was presented at the CRPA Annual Meeting. Balance Sheet and Profit and Loss Reports are available upon request.

### Financial Report:

Total Checking/Savings	\$35,124.00
Total CDs	<u>\$15,231.14</u>
<b>TOTAL ASSETS</b>	<b>\$50,355.14</b>

### In This Issue

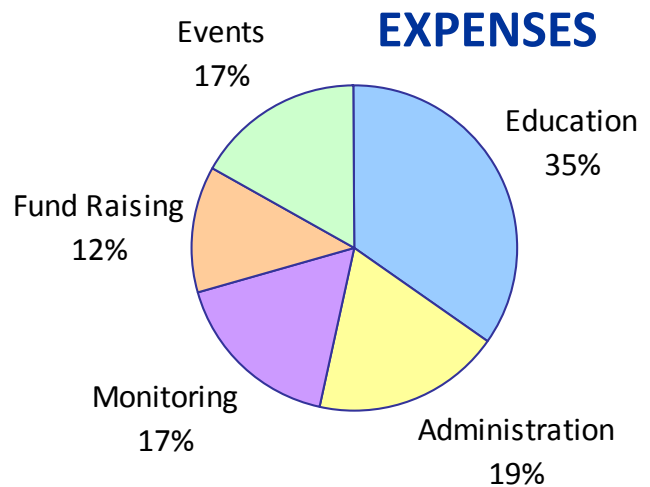
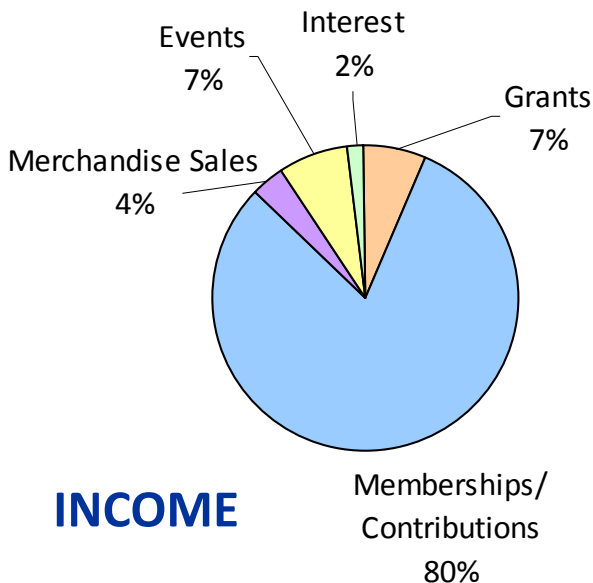
- State of the CRPA Report
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### Income

Grants	\$ 2,000
Membership & Contributions	\$24,468
Merchandise Sales	\$ 1,094
Events	\$ 2,250
Interest	\$ 511
<b>Total</b>	<b>\$30,323</b>

### Expenses

Education	\$9,338
Monitoring	\$4,571
Events	\$4,581
Fund Raising	\$3,353
Administration	\$5,023
<b>Total</b>	<b>\$26,866</b>



CRPA

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Jean Ann Manner

Anne McCaig, Co-Secretary

Dave Peters

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Roy Wright

Caroline Bott

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## President's Column

Dear Friends:

FINALLY, the long winter and cold spring has ended and summer is here. Its time to enjoy the Cowpasture! There are fishing lines to cast, kayaks and canoes to paddle, inner tubes to float, and lounge chairs to perch on the river bank. Doing these simple things makes us realize how precious this beautiful body of water is to us, how important it is for us to protect it, and keep it pristine.

Certainly one of our main concerns is the fish-kill situation. Don Kain from the Virginia Department of Environmental Quality couldn't give us a definitive cause for the sick fish at our annual meeting. However, since that time, studies indicate that the situation is not as serious here or in the Shenandoah River as it was last year. Local fishermen also tell us that while the fish they catch are small they are not catching ones with lesions. Hopefully we will get some answers soon.

Once again we participated in a river clean up at the Walton Tract. The amount of trash collected was much less than last year. We are optimistic that folks are being more responsible with their refuse and more respectful of our environment.

We deeply regret that our Executive Director, Caroline Bott, is leaving us. We are indebted to her for her tireless efforts and dedication to the ideals of the CRPA. Caroline, we wish you well and many, many thanks.

We look forward to seeing you at our summer picnic on August 16th at the Longdale Recreation Area. Until then relish the Cowpasture! — Joe



Joe Wood's dog Carly floating the Cowpasture



Robert Brailsford, Joe Wood, Read Lunsford, and Lucius Bracey Made Quick Work of the Walton Tract River Clean Up in May



## Executive Director Update

As most of you know, I will be stepping down from my position as CRPA's Executive Director in the next few weeks. Working for CRPA has been a wonderful opportunity that has benefited me both professionally and personally. I am continually impressed with the level of dedication for and love of the river that you all share. And I hope to continue to lend my assistance as a volunteer and member of the association.

On to business...this newsletter issue represents the 2007-08 CRPA Annual Report. I hope you will take time to read our accomplishments during the last year and I hope these activities will inspire you to remain or become involved in our work in the upcoming year.

Additionally, I am pleased to report that ALL of our board officers have agreed to serve an additional year in their current positions. This should provided for needed consistency as we transition to a new executive director in the coming months. I would also like to thank Read Lunsford, who was nominated to the board of directors at the annual meeting, for his willingness to serve this organization. I know I leave you all in great hands!



### ***Congratulations to the Kayak for a Cause Raffle Winners!***

**First Prize (all-inclusive kayak package)  
Ed Chitwood (*pictured at right*)**

**Second Prize (enviro-friendly rain barrel)  
David Blankenship**

**Third Prize (framed aquatic insects poster)  
Martha Rule**

**Fourth Prize (wood duck box)  
Michael Wildasin**



## UPCOMING EVENTS OF INTEREST

- Virginia Citizens for Water Quality Summit — August 9, University of Virginia ([www.virginiacwq.org/](http://www.virginiacwq.org/))
- CRPA River Day Annual Summer Picnic — August 16, Longdale Recreation Area (see page 11)
- 4th Annual Freshwater Folk Festival — October 4th, White Sulphur Springs National Fish Hatchery ([www.freshwaterfolkfestival.org/](http://www.freshwaterfolkfestival.org/))
- 2008 Chesapeake Watershed Forum — October 2-5, Shepards town, WV ([www.acb-online.org/ChesForum08.cfm](http://www.acb-online.org/ChesForum08.cfm))

# 2008 State of the CRPA Report

*Continued From Page 1*

## 2007-2008 Year in Review Highlights (abbreviated)

### Education

- Scholarships - Awarded three \$250 scholarships to area students
- Watershed Workshops – Hosted a series of four environmental education workshops at Dabney S. Lancaster Community College (DSLCC), as part of their noncredit course offerings, over 60 people were in attendance
- The River Runs Newsletter — Published 3 issues in 2007-08, newsletters are now archived on the CRPA website and individuals can choose to receive their newsletter electronically by email

### Monitoring

- CRPA continued water quality monitoring (macroinvertebrate and bacteriological) in 2007-08 under the direction of Kent Ford, CRPA's volunteer monitoring coordinator. On average, bacterial monitoring occurs twice monthly, year-round at six sites in the watershed. CRPA conducts macroinvertebrate monitoring at seven sites in the watershed throughout the year
- The Monitoring Report was established in 2007 as a reoccurring feature in *The River Runs* newsletter, informing members and other interested individuals about CRPA monitoring activities and data
- CRPA held a two-day Introduction to Macroinvertebrate Monitoring and Training Session in May, and a second training session was held in conjunction with Virginia Save Our Streams in August
- In September, CRPA monitoring was highlighted by *The Recorder* as part of World Water Monitoring Day
- CRPA volunteers mobilized to help reinstate funding in the state budget for the Citizen Monitoring Grant Program during the 2008 General Assembly session
- CRPA volunteers continue to monitor and participate in the fish kill investigation, summaries of findings have been distributed to members, published in the newsletter, and links to relevant web sites are posted on the CRPA website

### Events & Activities

- Four river cleanup were held in 2007 in conjunction with National River Cleanup and Virginia Waterways Cleanup days. 51 volunteers collected an estimated 1000+ lbs of trash and debris
- CRPA was recognized by the VA Department of Environmental Quality for efforts towards the designation of three Cowpasture River tributaries as Exceptional State Waters
- Over 60 members and guests attended the 2007 Annual Meeting in May
- Board of Directors toured MeadWestvaco wastewater treatment facility and Coursey Springs State Fish Hatchery
- River Day annual picnic held at Lynchburg Camps in August, event was open to the public and highlighted in an article in *The Recorder*
- CRPA co-hosted a Lime and Fertilizer Management Program with the VA Cooperative Extension and the Mountain Soil and Water Conservation District in October



**CRPA Board Members Accepting Certificate of Appreciate from VA DEQ Regional Director (far right) for Efforts on the Exceptional Waters Designation**

### Fundraising

- CRPA was awarded two grants, totaling \$2,000, to support our environmental education programming
- The Annual Fund raised over \$15,000 in unrestricted support of our programs
- 245 tickets were sold during the Kayak for a Cause raffle, raising \$1,225 in additional funding support

### CRPA Representation on Local, Regional, and State Organizations

- CRPA is active in the following organizations: Alleghany Highlands Environmental Council, Upper James River Roundtable/Mountain Waters Resource, Conservation & Development (RC&D), and the Virginia Citizens for Water Quality

# **CRPA is thankful for the generous support from all of its members and contributors over the last year...**

## **WHALLAWHATOOLA SOCIETY**

Anonymous Donors  
Lucius and Pam Bracey  
Kent and Ellen Ford  
John Fowler and Mary Sanders  
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Anne Huebner

## **WATERSHED STEWARDS**

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Stewart and Lizzy Bryan  
Joe and Kathy Wood  
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Camp

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## **GRANTS, MATCHING FUNDS & IN-KIND DONATIONS**

MeadWestvaco Foundation  
Riders Up! Outfitters  
Rockbridge Area Community  
Foundation  
Virginia Hot Springs  
Preservation Trust

*Every effort has been made to review all of the information included in this report; however, errors or omissions may still occur. Please accept our apologies if something is incorrect and bring it to our attention by calling (540) 460-0268 or emailing [directorcrpa@gmail.com](mailto:directorcrpa@gmail.com)*

*Note: List represents dues and contributions (combined) made between May 1, 2007 and June 30, 2008 (fiscal year ended April 30). Memorial gifts have not been included.*

# Solving the Puzzle of Recurring Fish Kills in Virginia Rivers

By Donald J. Orth, PhD Professor, Department of Fisheries and Wildlife Sciences, Virginia Tech  
July 2, 2008

This spring numerous investigators converged on the rivers of Virginia to study fish health before the spring fish kills. The members of the team included employees of the Department of Environmental Quality, Department of Game and Inland Fisheries, U.S. Geological Survey, and Virginia Tech's Department of Fisheries and Wildlife Sciences. Many fishes were sampled by electro-shocking and each fish sacrificed was examined internally and externally for a complete health assessment, blood samples were taken, and swabs were taken to obtain samples for culturing bacterial pathogens.

Fish kills began within the Shenandoah basin in 2004 and expanded to the upper James River and Cowpasture River in 2007. Many plausible explanations for fish kills were generated and many fish and water samples were subjected to testing. We currently suspect that waterborne contaminants and increased levels of parasitism are considered important factors in these outbreaks. One of the most common clinical signs among affected fish during die offs is lethargy and slow-swimming. Fish behave this way when they cannot get sufficient oxygen; yet river oxygen levels are normal, which suggests structural damage of the gill – the site of oxygen diffusion into the bloodstream. This respiratory distress is one of the early symptoms of pesticide poisoning though many metals, pesticides, extreme pH and ammonium may alter gill structure. Dead and dying fish typically have ulcerative skin lesions, commonly referred to as "red sore disease." This syndrome is nonspecific and can involve a number of agents typically bacteria and ciliated protozoans. Because the lesions are chronic in nature, they are often secondarily infected by water molds, protozoa, and other bacteria providing an important portal of entrance for a rich array of pathogens. In previous years, bacteria (*Aeromonas*), *Epistylus*, and *Trichodina* (protozoans) were identified from affected fish within the Shenandoah basin. While *Epistylus* is considered a benign commensal species, *Aeromonas* is considered one important culprit in disease presentation.

***Fish Kill Continued on Page 10***



Photos taken by Kent Ford and Caroline Bott During Fish Sampling at the Walton Tract and Lynchburg Camp, Spring 2008

# On Building a Wood Duck Box

*Read Lunsford generously donated a wood duck box for our kayak raftle in May; since then, many of you have requested plans to build your own. The following information is compiled from the Virginia Department of Forestry, Ducks Unlimited, and the USGS websites:*

Wood ducks live throughout Virginia's swamps and wetlands. They are secretive birds that often seek areas of flooded timber and woody vegetation.

Most wood ducks hatched and raised in Virginia migrate south to the Carolinas, Georgia and Alabama. A few birds will remain in Virginia during mild winters. The lack of suitable nest cavities will affect distribution of breeding wood ducks in an area.

A combination of downed timber, woody and herbaceous emergent plants, interspersed with small openings of surface water, provide ideal year-round habitat. Vegetative cover should always exceed 50% of the surface water area. Loafing sites are required throughout the area for preening and sunning. The sites should be open for good visibility, surrounded by water and near escape cover. A minimum of 10-15 sites per surface acre is needed. Logs, stumps, muskrat houses, and tussocks are good examples of loafing sites. Competition for available cavities, predation, and food availability will limit wood duck production.

Several wood duck nest box designs and styles are available today. The most important items to remember when setting-up nest boxes are:

1. All nest boxes should be placed on posts or trees and MUST have predator guards installed. Cone-shaped guards fashioned from sheet metal are acceptable. Placing 6" PVC pipe over the post also works well. Make sure any small openings around the guards and/or pipes are completely blocked off to prevent snake predation.
2. Nest boxes may be placed at a density of one box per acre of quality habitat.
3. Nest boxes should be located over or very near water.
4. Locate nest boxes within or adjacent to quality brood habitat.
5. Nest boxes MUST have fresh wood chips or wood shavings placed in every box each year. Discard old nest material and replace with new material before February 1st each year. Do not use hay, straw or sawdust.

Once a cavity nesting bird starts using your box, you'll likely see many broods raised over the years. Nesting sites for these birds are limited in number. When they find a good nesting site, there is a very good chance they'll return in following years.



If you don't have any ducks using your box over the summer, don't worry. Waterfowl biologists have seen waterfowl migrating in the fall scope out potential nesting sites for next spring. This too is a good reason to keep your boxes in top condition. You never know when somebody might be popping in!

There are many on-line resources and plans for building wood duck boxes. Some of our favorites include:

[http://www.ducks.org/media/Conservation/Conservation\\_Documents/\\_documents/duck\\_box\\_plans.pdf](http://www.ducks.org/media/Conservation/Conservation_Documents/_documents/duck_box_plans.pdf)

<http://www.npwrc.usgs.gov/resource/birds/woodduck/wdnbox.htm>



# The Monitoring Report

By Kent and Ellen Ford

In the Winter 2007-08 issue of the newsletter we described how colony counts of the bacteria *Escherichia coli* (*E. coli*) are used as an indicator of fecal contamination in water samples. The *E. coli* bacteria are found only in the feces of warm-blooded animals. We showed plots summarizing the data for 2007.

In the first six months of 2008, CRPA monitors Kent Ford, Anne McCaig, and Ellen Ford were out taking samples every two weeks. We sampled three sites on the upper Cowpasture River (from Millboro Springs to Williamsville) and three sites on the lower Bullpasture River (from the confluence with the Cowpasture at Williams-

ville up to Clover Creek). We took two samples of water at each site.

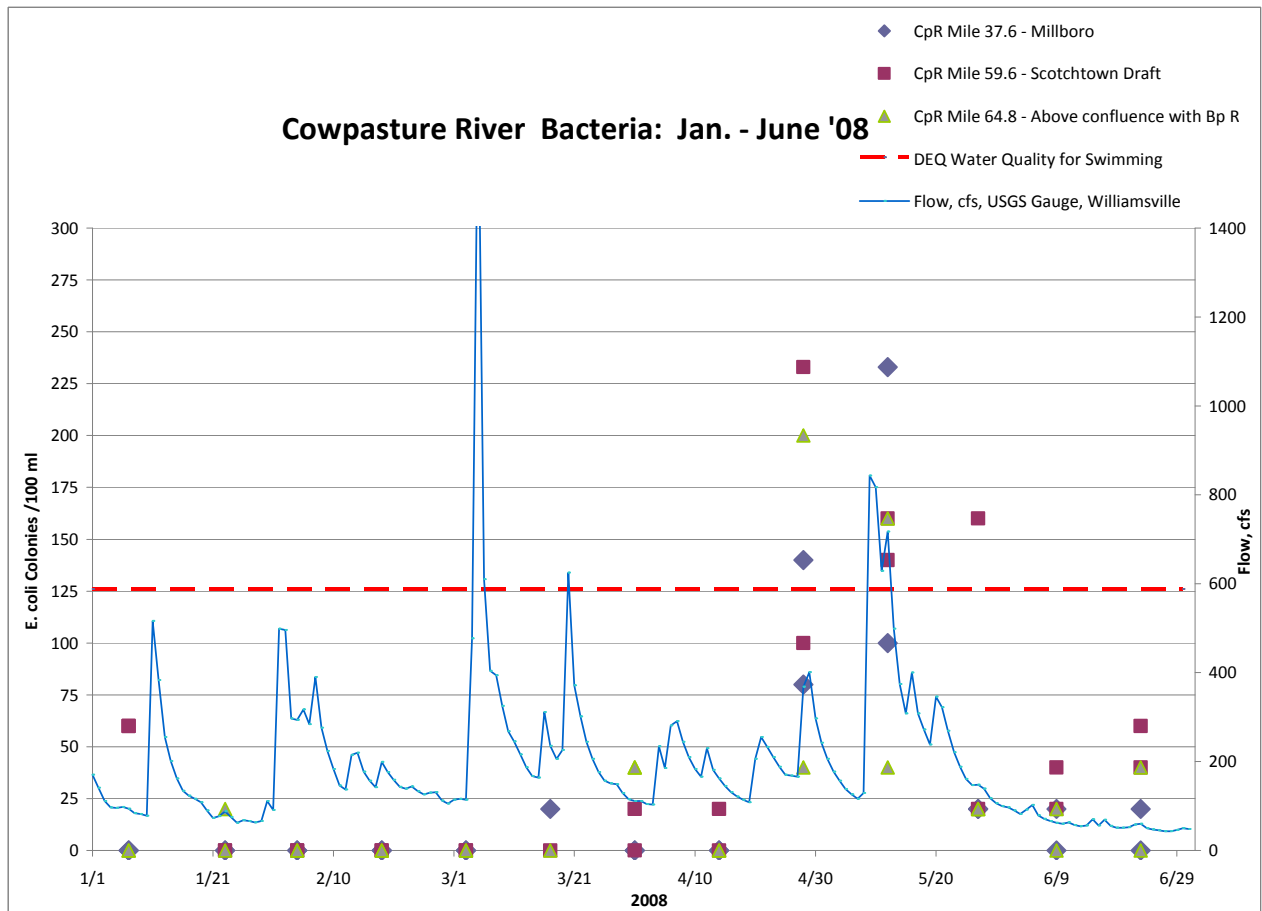
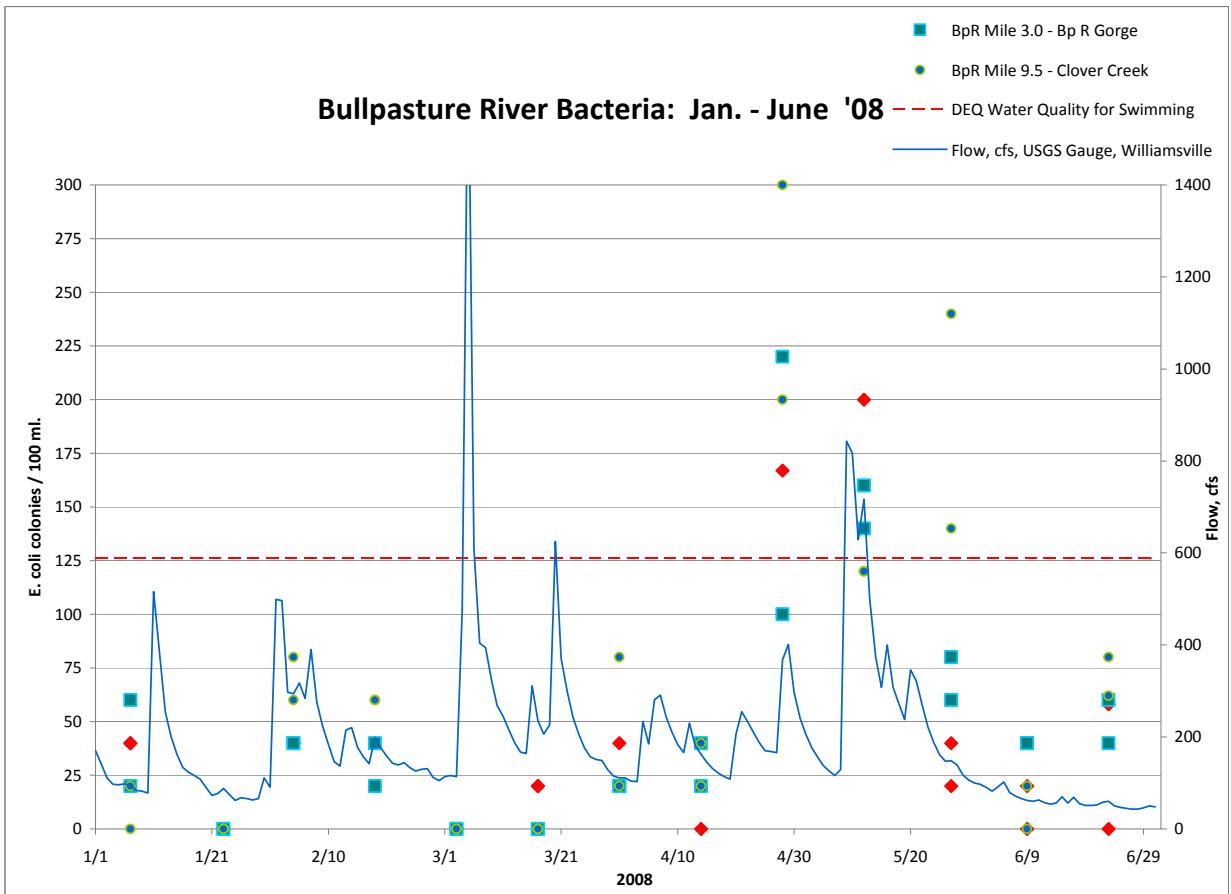
Our data are shown on the following plots (page 9). Colored symbols represent the *E. coli* colony counts at each of the sites. A reference level of 126 colonies per 100 milliliters is plotted with a dashed red line; this is a traditional level of contamination that is considered to be still safe for water contact sports: swimming, bathing, kayaking, etc. Also, since we suspect that high *E. coli* counts are originate with rain-storm runoff, we show on both charts the US Geologic Survey data for the flow (in cubic feet per second) of the Bullpasture River at the Williamsville gauge.

So, how is the water this year? During the winter months, the *E. coli*

colony counts were consistently low – unlike the winter of 2007. However, from late April through May, there were high counts on the days we sampled. By the time the water had warmed up enough to wade or swim, the *E. coli* counts were back down at “safe” levels. We will continue to monitor through the summer. And, we will continue to wade, swim, and kayak unless the river is very high and muddy!



Photos from CRPA Macroinvertebrate Training Session at Millboro Springs, May 2008



## Fish Kill Continued from Page 6

*Nematode Parasite from Intestines of a Smallmouth Bass*  
Photo by Shannon Ragland, Virginia Tech



Nutrient enrichment and its effects on invertebrate communities, and parasites have been identified as an important process affecting river ecosystems. In other regions, agricultural land use has been shown to increase the numbers and kinds of parasites because eutrophication enhances food and habitat for intermediate hosts, including snails. A link between environmental contaminants and disease has long been identified and there is emerging evidence that hormones from confined animal feeding operations, pharmaceuticals, personal care products, feed additives and biocides, even at low concentrations play a role in feminization, parasite infection dynamics, immune function and incidence of both infectious and noninfectious disease. The role of endocrine disruptors in fish health is also an area of great concern, particularly as the intersex male condition has been documented in smallmouth bass (*Micropterus dolomieu*) in the Cowpasture and Shenandoah Rivers of Virginia and other tributaries of the Potomac River by Dr. Vicki Blazer, U.S. Geological Survey.

Investigations on the causes of these chronic fish kills are being pursued by numerous investigators and an integrated research approach has been developed by the Fish Kill Task Force, led by Don Kain (DEQ) and Steve Reeser (DGIF). This approach will help to identify the principal factors associated with the fish kills and use this information to begin to identify mitigation and management options for securing the health of these waterways and the fish communities that live there. Three hypotheses drive the various investigations: (1) Nutrient enrichment and endocrine disruptors increases the population density

of fish parasite intermediate hosts, increasing fish parasite diversity, prevalence and intensity of infection; (2) Water borne contaminants compromised the fish immune system and overall health and increase susceptibility of fish to parasite invasion and mortality; (3) Parasite-induced ulcerative lesions enhance exposure and effect of water borne contaminants.

The concentrations of numerous organic contaminants and basic nutrients have been measured by the Department of Environmental Quality. The US Geological Survey scientists with the Fish Health Research Center have sampled tissues and cultured bacteria on hundreds of fishes affected by the fish kills. Virginia Tech's efforts are currently funded by a contract with the Department of Game and Inland Fisheries. The project will investigate the spatial and temporal dynamics of fish kills in relation to select contaminants, changes in density of key indicator invertebrate species, fish health metrics, parasitism and land use in order to identify important variables associated with outbreaks of fish mortality. Our sampling of the Cowpasture River was part of an effort to assess the health of wild, free-living smallmouth bass populations based upon blood parameters, key chemical stressors, parasite prevalence, diversity and intensity of infection; gross and histological assessment of tissue and organ pathology including pathogenic bacterial infection. From the analysis of data on blood parameters, organ health, parasite infestations, nutrients, land use, and organic contaminants, we will assess overall fish health in seven rivers in Virginia. Additional analyses of land and water uses and discrete and dispersed sources of stressors will be brought to bear on the identification and ranking of primary variables associated with fish kills and the level of risk posed.

Acknowledgements: Study is funded by Virginia Department of Game and Inland Fisheries





You and all of your friends are invited to

## RIVER DAY

the Cowpasture River Preservation  
Association's Summer Picnic

**When:** Saturday, August 16  
2:00 pm — Swim & Socialize, 4:30 pm — Dinner Served\*

**Where:** Longdale Recreation Area  
off Rt. 269 (Longdale Furnace Rd.) in Alleghany Co.

**What:** Traditional Picnic Fare  
(hot dogs, hamburgers, & drinks provided)  
Please bring a side dish or dessert to share

**Cost:** Adults \$10, Children 12 and under \$5

**Questions:** Contact Joe Wood at (540) 862-9408 or  
Caroline Bott at [directorcrpa@gmail.com](mailto:directorcrpa@gmail.com)

\* A mid-day float trip on the lower Cowpasture may be organized , call Joe if interested in participating

### River Day Picnic Reservation Form

# Adults \_\_\_\_\_ @ \$10 #Children \_\_\_\_\_ @ \$5 Total \$ \_\_\_\_\_

Name(s) \_\_\_\_\_

Address \_\_\_\_\_

Phone \_\_\_\_\_

Email \_\_\_\_\_

Complete form & send check payable to CRPA by August 9 to:  
CRPA PO Box 215 Millboro, VA 24460

# I Want to Support the Cowpasture River Preservation Association

- \$20 Member (minimum annual membership donation)
- \$50 River Guardian
- \$100 Headwaters Circle
- \$250 Watershed Steward
- \$500 Wallawhatoola Society
- Other \_\_\_\_\_

NAME

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- I prefer not to have my name published at a contributor
- I am interested in becoming a volunteer river monitor
- I want to help save valuable resources, please send my newsletter by email



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