

# Roanoke River Watershed Open House

## Water Quality and Economic Development: a Stream Ecologists Perspective

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The most important natural resources in Virginia are our rivers and streams

# THE CHALLENGE: MANAGING ALL OF THE USES

Fishing



Recreation



Drinking



Aquatic Life



Waste Disposal



Water quality issues are  
complex and “seemingly”  
conflicting

# Mayflies are important to economic development

- 2011 Pew Survey – 71% said we should do what ever it takes to protect the environment
- 2012 NRV Livability Initiative Survey – Water quality was number one concern
- 2012 Yale/George Mason Survey –
  - 58% said environmental protection promoted economic growth and created jobs
  - 62% said protecting water quality is more important than economy

# Aquatic Life Use

Caddisflies



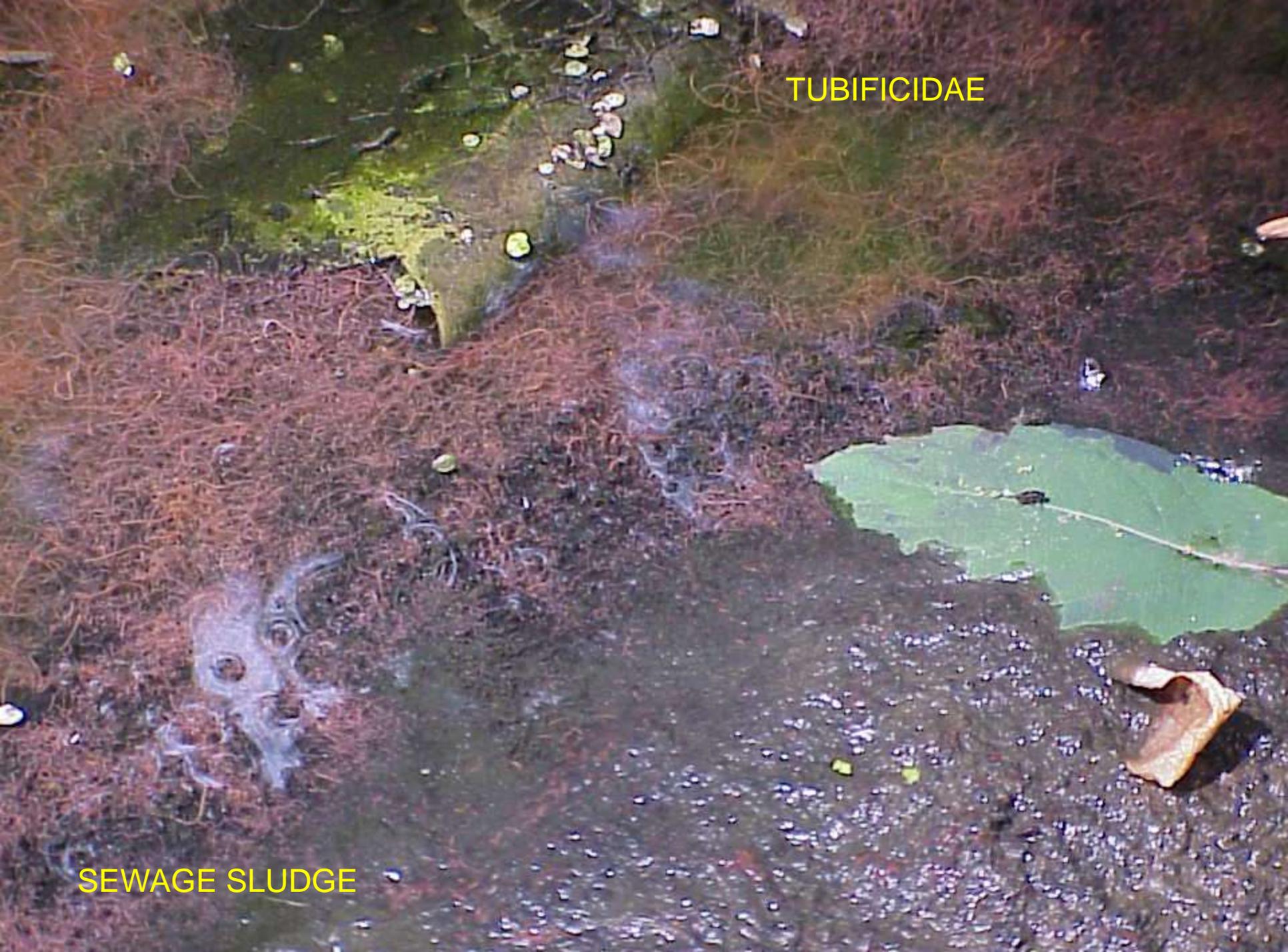
Stoneflies



Mayflies

TUBIFICIDAE

SEWAGE SLUDGE



# Why do we look at invertebrates ?

- Important as fish food
- Large numbers and easy to collect
- Good indicators of health



# The Problems in the Roanoke River

## Sedimentation and Bacteria





Why are we concerned about bacteria?

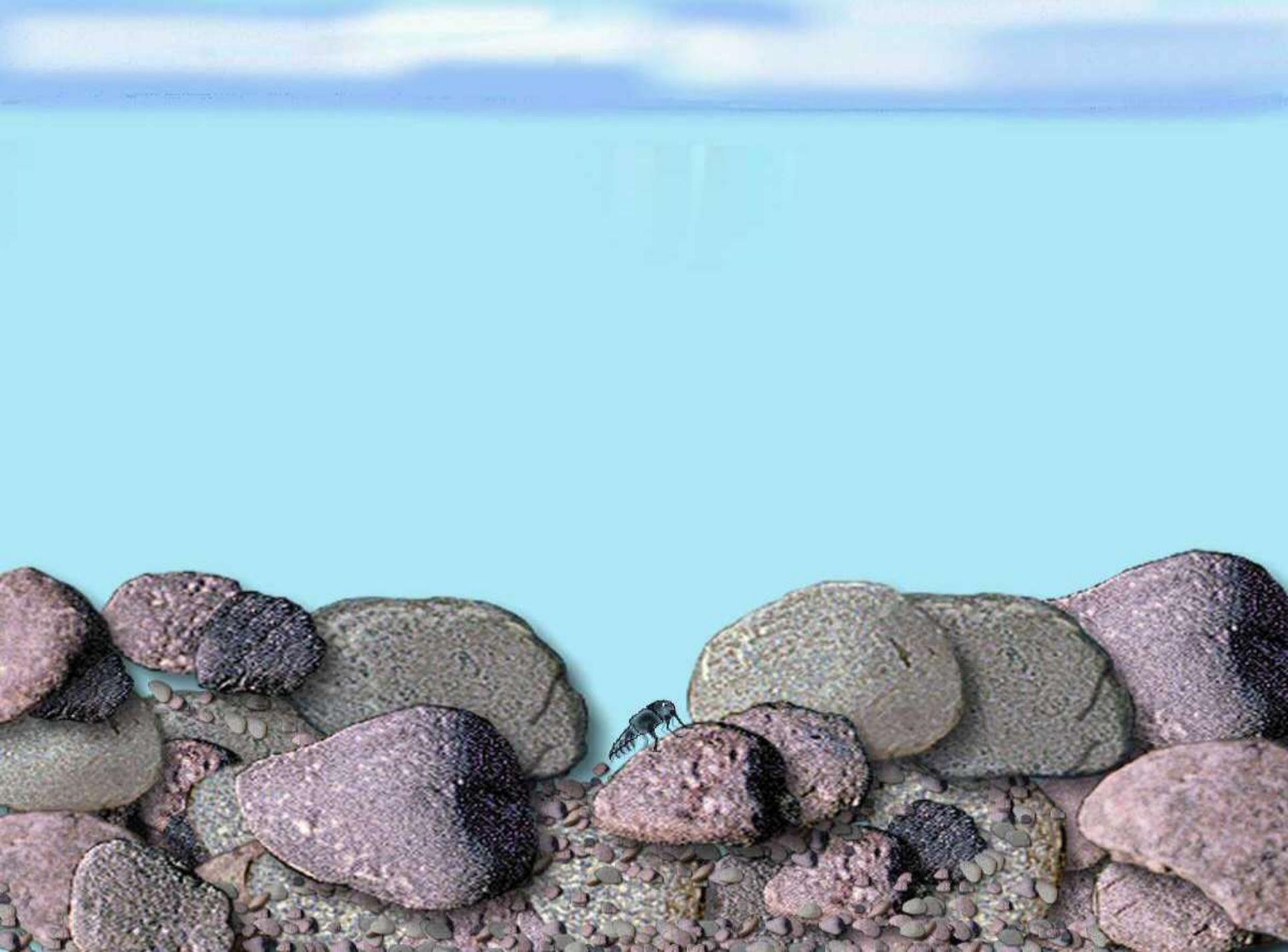
Green slime and dirty water  
inhibits economic growth

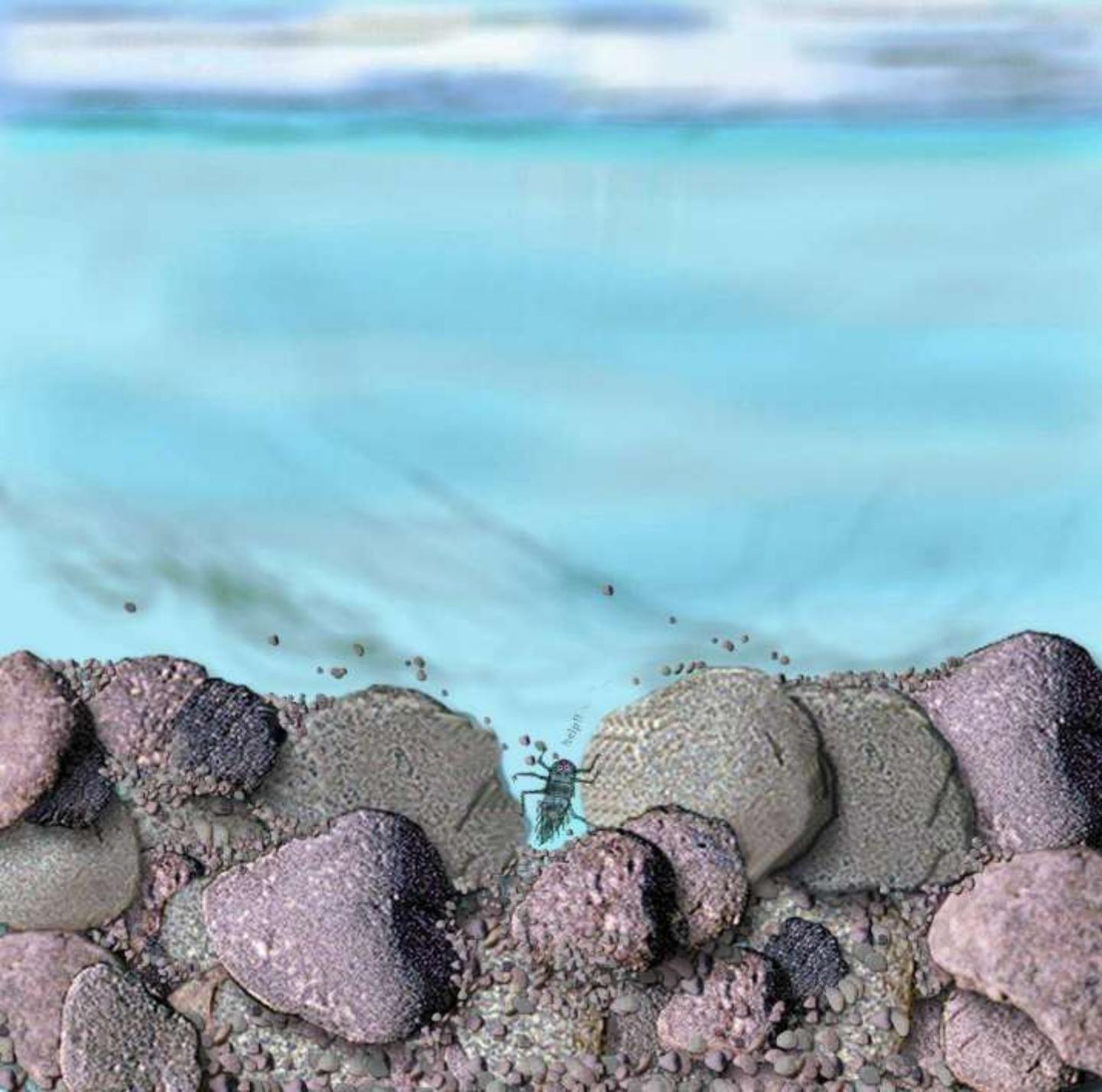


Sediment knee-deep on a  
mayfly is too deep!

Things that live on the bottom of the stream need space between rocks and a stable stream bottom







Moving  
sediments  
cause  
spaces to  
be filled  
and is an  
unstable  
habitat.

Sediment instability causes habitat loss and  
can physically destroy stream life

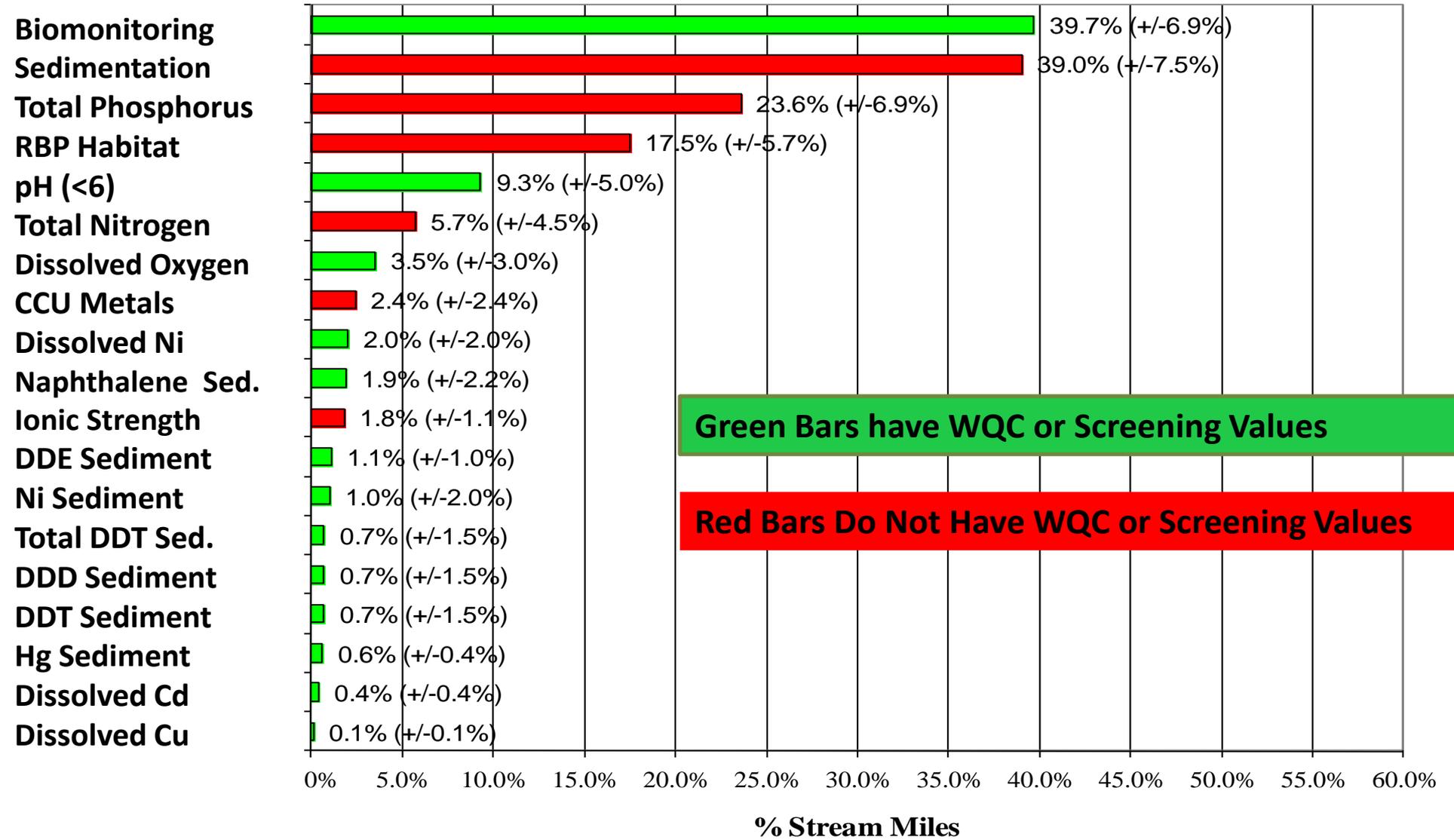


**LRBS = 0 is like having a  
tornado once every 2 years**



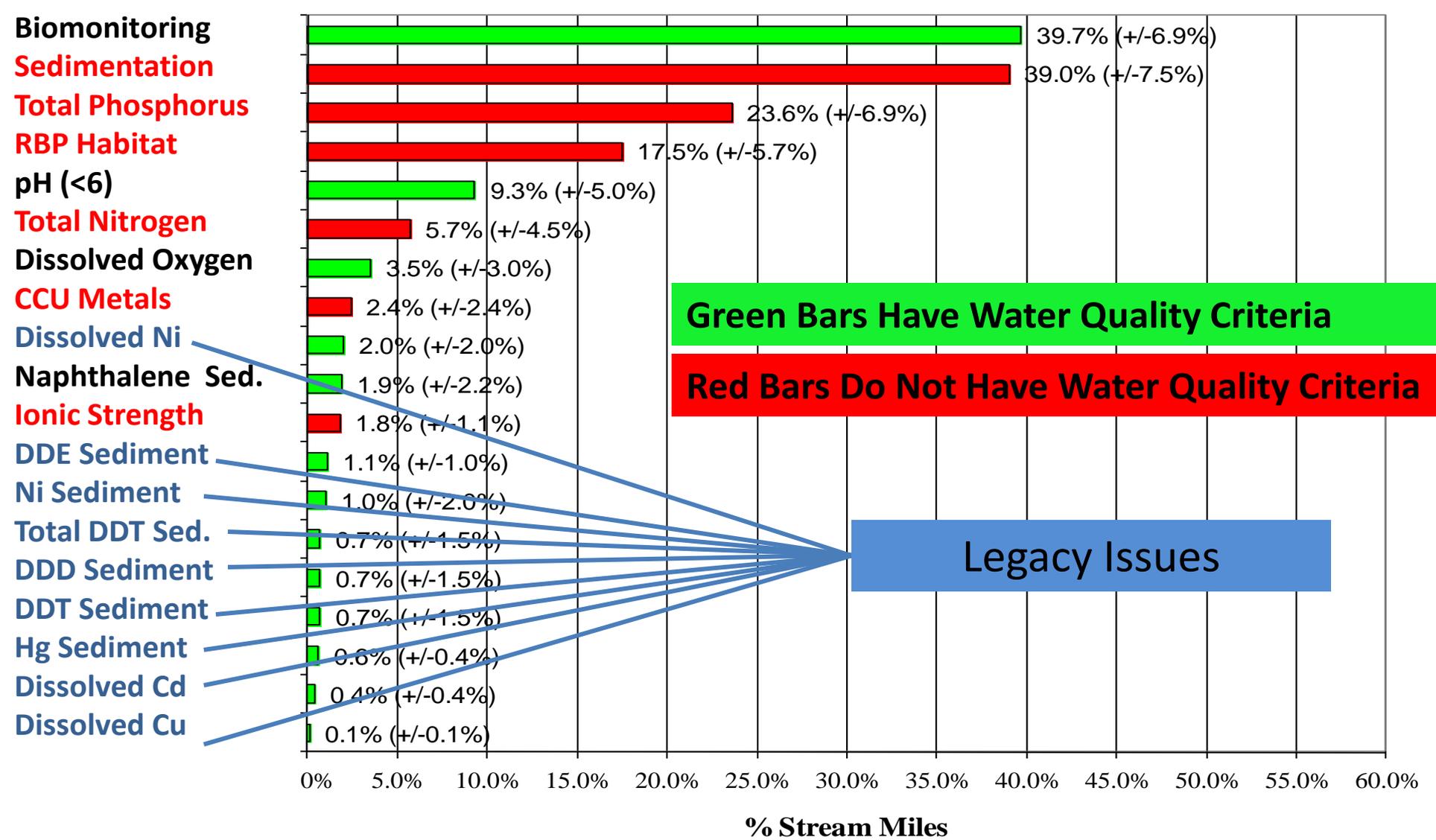
**LRBS = -2 is like  
having a tornado  
every time it rains!**

Our rivers are too  
important to...



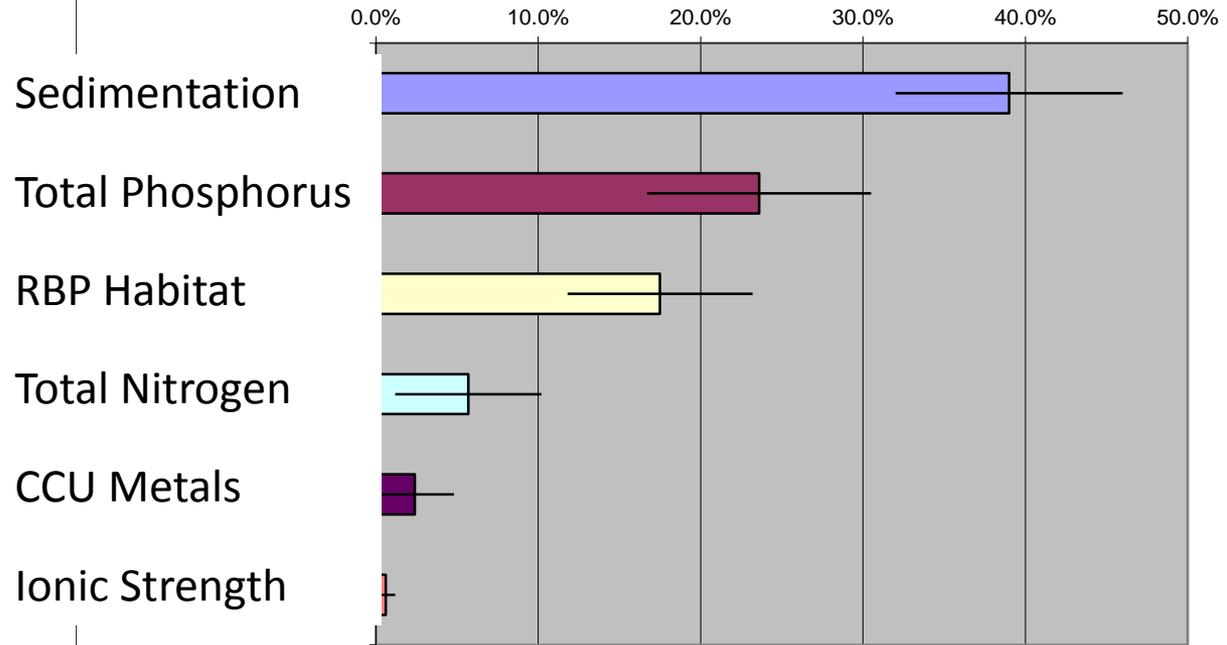
Percent of rivermiles not meeting expectations for aquatic life and the most common stressors in Virginia streams

Virginia 2012 305(b).

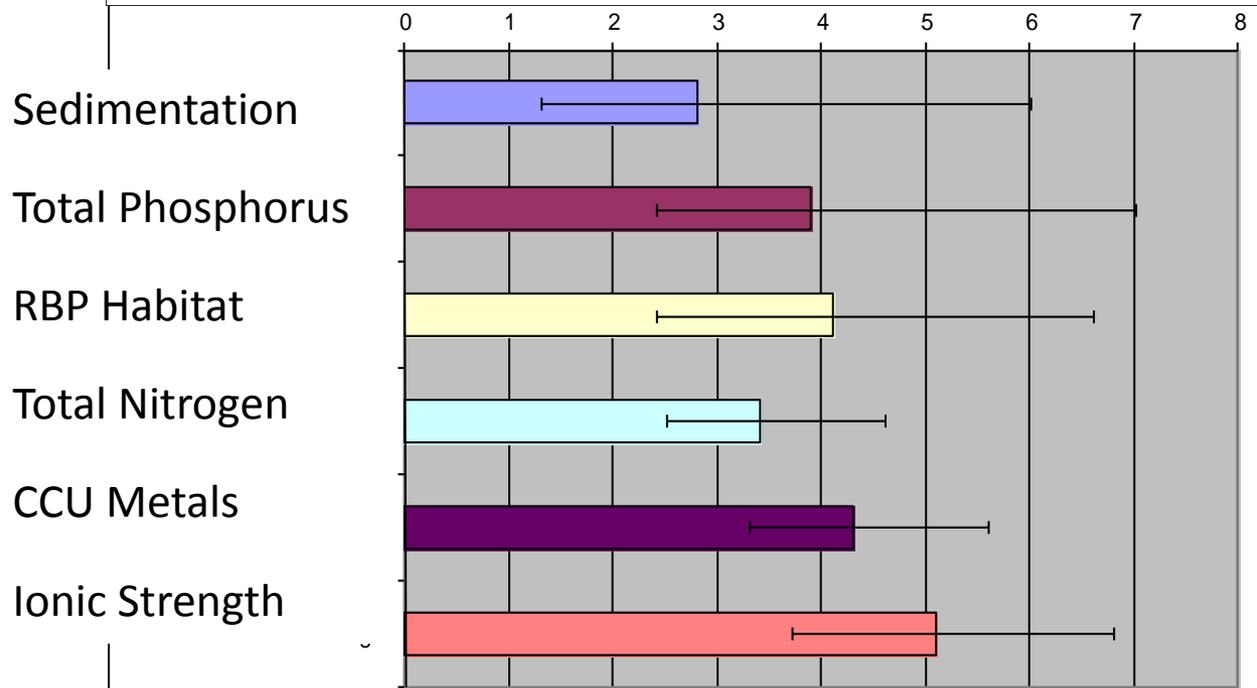


Percent of rivermiles not meeting expectations for aquatic life for the 18 most common stressors in Virginia streams  
 Virginia 2012 305(b)

# Stressor Extent



# Relative Risk



# EPA Ranks Virginia Second For Toxic Waterways

By: Matt McCleskey // March 25, 2012

An environmental group says Virginia ranks second in the nation in the amount of toxic chemicals dumped in state waterways. The report from the group Environment Virginia says industrial facilities released more than 18 million pounds of toxic chemicals into lakes, rivers and streams around the Commonwealth in 2010.

Misinformation distracts attention  
from real issues and is not good for  
water quality or economic  
development