# DEP Water Quality Standards Program
# Quarterly Public Meeting
# March 31, 2011

# Meeting Agenda/Overview

- Intro/WQS Meeting Goals
- Review/WQS Rule - 47CSR2
- DEP Nutrient Monitoring
- DEP/Watershed Assessment Updates
- Wrap-up/Conclusion

# Meeting Purpose/Goals

- Previous feedback:
  - Need more outreach for WQS Program
- Public Meetings:
  - Informal format
  - Not bound by formal hearing procedures
  - Present information/gain feedback

# Meeting Purpose/Goals (cont.)

- Information/Topics:
  - WQS Program related (47CSR2)
  - DWWM news/info
  - Other agency info (EPA, ORSANCO)
  - Other news/announcements

# Meeting Purpose/Goals (cont.)

- Proposed 2011 schedule:
  - Quarterly*:
    - ***March***
    - June (~end of June)
    - September
    - December

*Will revisit schedule in December

# 47CSR2
## "Requirements Governing Water Quality Standards"

- DEP, DWWM – WQS Program
- WQ standards found in "Rule"
- WQS Program:
  - Develop/revise standards
  - Review/approve variances
- Rule additions/revisions submitted to Legislation for approval
- ***<u>Ultimate approval by EPA</u>***

# 47CSR2
## "Requirements Governing Water Quality Standards"

2011 Proposed Rule *(Brief history)*

- Revisions to Rule proposed in 2010
- Code requires:
  - Notification
  - Comment Period
  - Public Hearing

# 47CSR2
## "Requirements Governing Water Quality Standards"

2010 Rule Review Timeline

- DEP Advisory Council - May 27,2010
- Public Notice in State Register - June 4, 2010
- 45 day Comment Period June 5 - July 19, 2010
- Public Hearing - July 19, 2010
- Agency Approved Filing w/SOS - July 30, 2010
- WV Legislative Rule-making - Review Fall 2010
- *WV Legislature Review - Jan 2011*
- *State Effective ??? Summer 2011*
- *EPA Approval ??? Late 2011*

# 47CSR2
## "Requirements Governing Water Quality Standards"

## 2011 Proposed Rule

- Proposed Revisions:
  - Water Withdrawals
  - ½ Mile Rule - Ohio R.
  - Stonewall Jack. Res
  - Deletion Harmon Creek variance
  - Ward Hollow variance
  - Nutrient Criteria - Lakes
  - Nutrient Criteria - Greenbrier R./Algae Blooms
  - TDS
  - Iron
  - Organoleptic conditions

# 47CSR2
## "Requirements Governing Water Quality Standards"

Proposed Rule - 2010 Re-cap

- Significant comments:
  - Greenbrier River TP standard/Algae
  - Total Dissolved Solids (TDS) standard
  - Water Withdrawals
  - Iron revision

# 47CSR2
## "Requirements Governing Water Quality Standards"

2011 Legislative Session

- Senate Nat. Resources - Feb. 7, 2011

- Water Withdrawal language removed
- TDS addition removed
- Greenbrier removed
- Amendment of Sulfate criteria (replacement) not accepted

# 47CSR2
## "Requirements Governing Water Quality Standards"

2011 Legislative Session

- Senate Judiciary - Feb. 22, 2011

- Further discussion on TDS and Greenbrier language - not replaced in bill
- Critical design flow revision (carcinogens) section of Ohio River - proposed & accepted
- ***SB 121*** *passed to House*

# 47CSR2
## "Requirements Governing Water Quality Standards"

2011 Legislative Session

- House Judiciary - Mar. 2, 2011

- Further discussion on TDS and Greenbrier language - not replaced in bill
- No further revisions
- ***SB121*** heard on House floor Mar. 11, 2011 and passed in " ***SB121*** Rules Bundle"

# 47CSR2
## "Requirements Governing Water Quality Standards"

## 2011 Proposed Rule

- Proposed Revisions:
  - ~~Water Withdrawals~~
  - ½ Mile Rule - Ohio R.
  - Stonewall Jack. Res
  - Deletion Harmon Creek variance
  - Ward Hollow variance
  - Nutrient Criteria - Lakes
  - ~~Nutrient Criteria - Greenbrier R./Algae~~
  - ~~TDS~~
  - Iron
  - Organoleptic conditions
  - Harmonic mean amendment - Ohio R. MP 68-70

# 47CSR2
## "Requirements Governing Water Quality Standards"

2011 Legislative Session

- Critical design flow for carcinogens amendment:
  - Amendment submitted by legislature
  - Critical design flow Ohio R. MP 68 - 70, Δ from 7Q10 to Harmonic Mean (EPA recommended)
  - Rest of Ohio R. remains 7Q10
  - Formal comment period open, hearing - May 3, 2011

# 47CSR2
## "Requirements Governing Water Quality Standards"

2011 Legislative Session

- Next Steps:
  - Post legislative revision for public comment - hearing scheduled for May 3, 2011
  - Finalize Rule
  - Submit to EPA for final approval - ~ late 2011 (?)

# 47CSR2
## "Requirements Governing Water Quality Standards"

2011 Legislative Session

- Other news during session:
  - Bay Funding Bill ***SB245***
    - $$ for POTWs in Bay and Greenbrier
    - $$ designated for Nutrients and/or BacT upgrades
  - Marcellus Shale Bill - did not pass

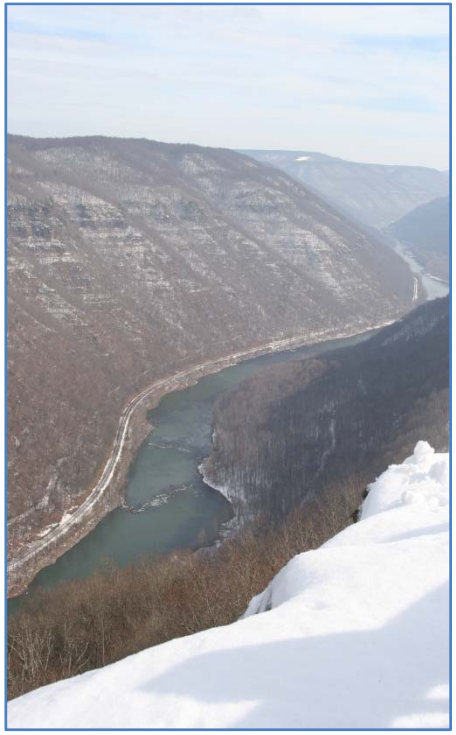
# 47CSR2
## "Requirements Governing Water Quality Standards"

***Post*** 2011 Legislative Session

- What next for 47CSR2?
  - Finalize current Rule and submit to EPA w/rationale
  - Review allocation of current/future resources
  - Review info from 2011 session/EPA input
  - Review EPA criteria recommendations

# 47CSR2
## "Requirements Governing Water Quality Standards"

## ***Post*** 2011 Legislative Session



- Timing?
  - Required during Triennial Review period
  - Not necessarily held to that
  - ?

# 47CSR2
## "Requirements Governing Water Quality Standards"

- Potential items for review/consideration:
  - DEP request EPA criteria development support:
    - Bromide, Problematic Ions (Cond.), BacT, Nutrients, Se, Turbidity
  - DWWM monitoring info
  - Other state efforts

# Nutrients

- EPA
  - Requiring states address nutrients (Bay TMDL, Gulf Hypoxia)
  - Nutrient criteria development
  - Status nationwide varies greatly
- WV
  - Case by case approach vs. statewide criteria
  - Greenbrier R. - 1st case (not approved)

# *Nutrient Update*

## *Flowing Streams*

*March 2011 WQS Meeting*

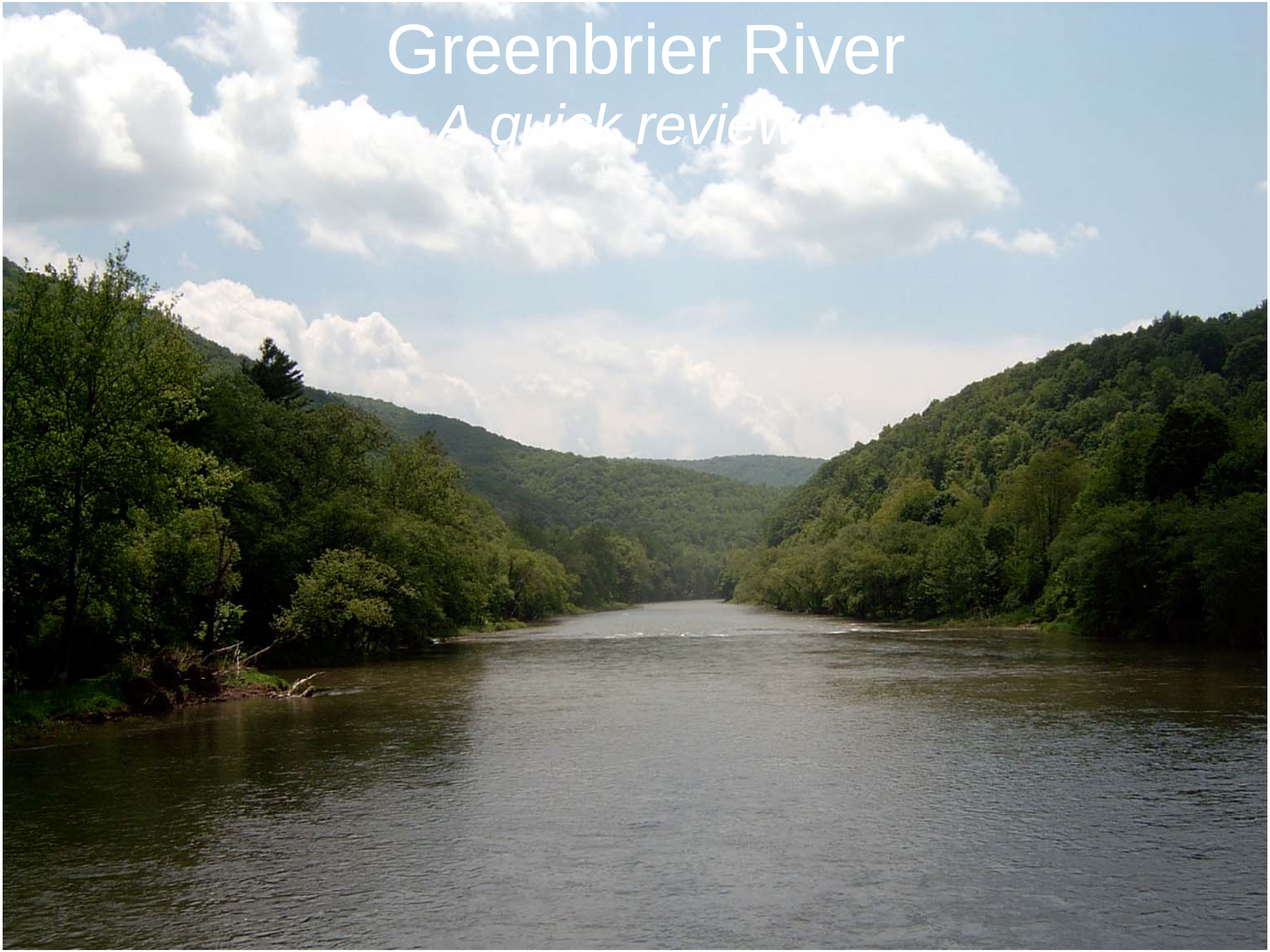
# One size DOESN'T fit all

- Differing in-stream chemistry
- Differing physical characteristics

- Need stream-specific criteria

# Greenbrier River

*A quick review*



# Greenbrier River

- Algae thrives where the nutrients are dissolved in the water.
  - esp. below sewage treatment discharges


Below Marlinton(2009)

# Below Hillsboro Discharge

# Below Denmar CC

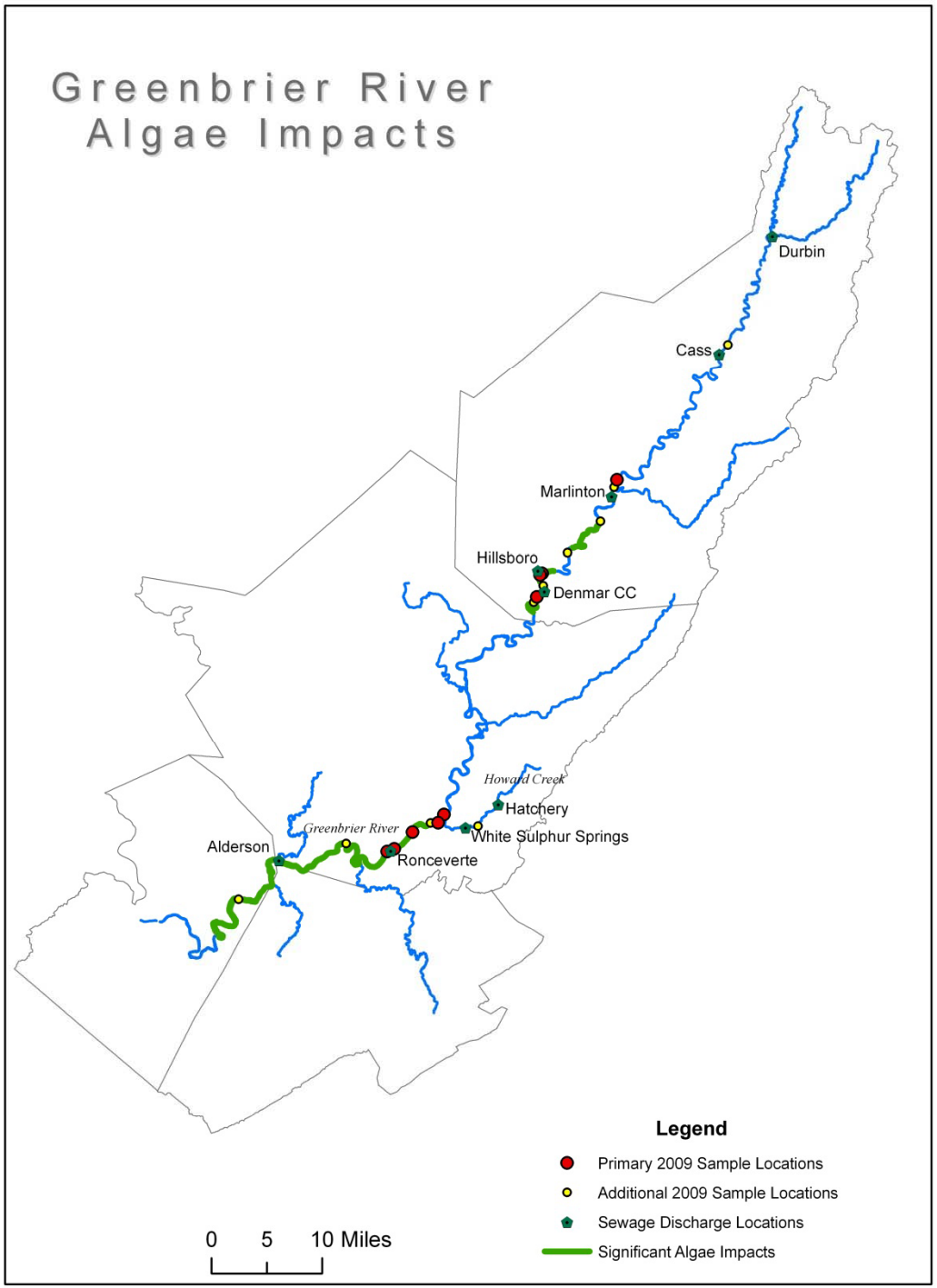

Below White Sulphur Springs


Below Ronceverte


Below Alderson

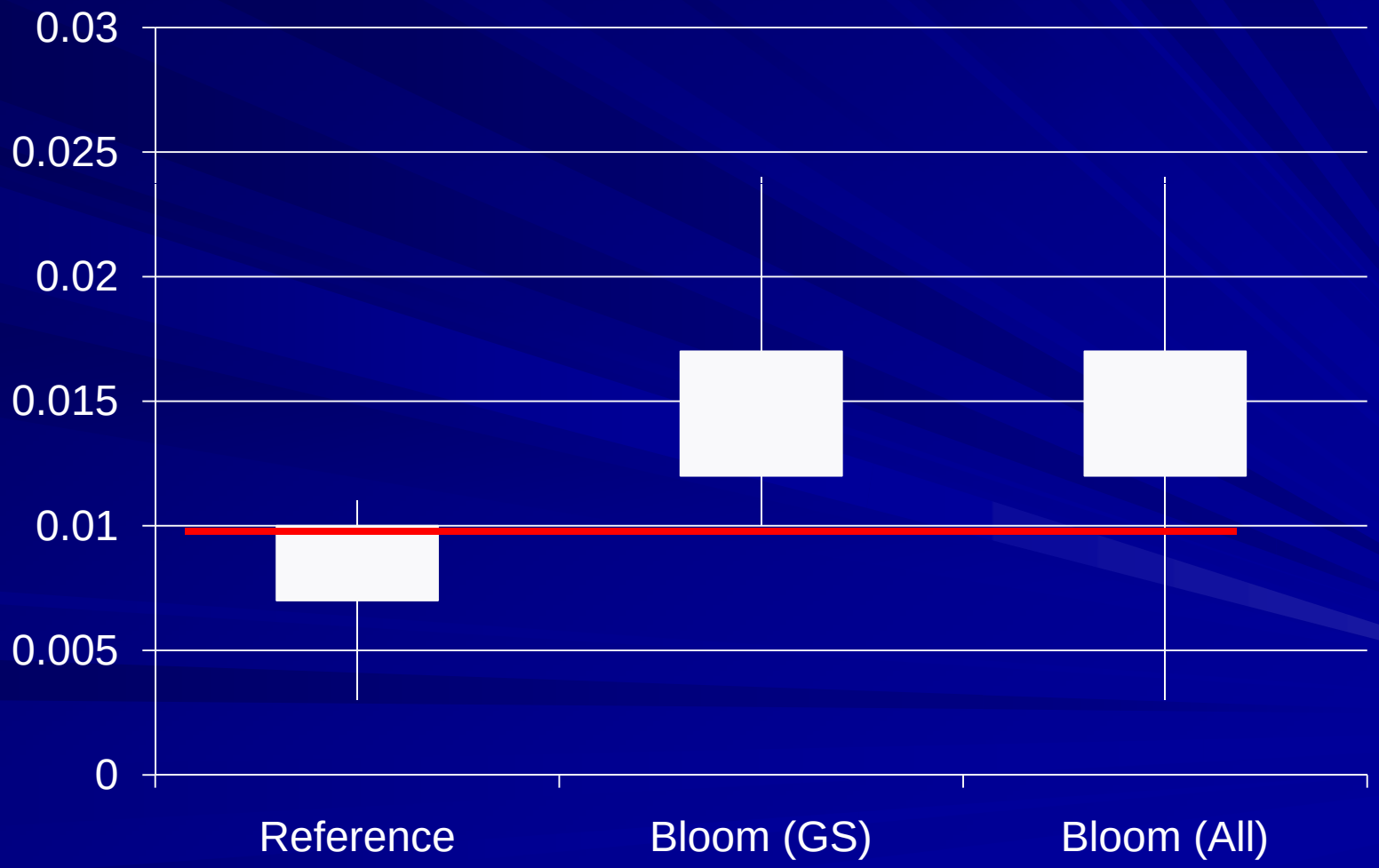
# Used “Reference Approach”

- Measured nutrient concentrations in various “bloom sites”
- Measured concentrations at “reference condition” sites


Greenbrier River
Algae Impacts
Durbin
Cass
Marlinton
Hillsboro
Denmar CC
Howard Creek
Hatchery
White Sulphur Springs
Greenbrier River
Alderson
Ronceverte
0 5 10 Miles
Legend
Primary 2009 Sample Locations
Additional 2009 Sample Locations
Sewage Discharge Locations
Significant Algae Impacts

# Peak algae level @ reference site

# Greenbrier River 2009
# T. Phos mg/l



# Proposed Standard

- 0.01 mg/l T. Phos
  - Mouth to Beaver Creek
  - Growing Season
  - Base Flow conditions only
- Did NOT pass in 2011 Legislative Session

| River | Avg. Hardness (mg/l) | Algae Development |
|---|---|---|
| **Greenbrier River** | 65 | Severe |
| **North Fork Hughes River** | 63 | Low [T] |
| **Tygart Valley River** | 70 | High |
| **New River** | 79 | Moderate [D] |
| **Cacapon River** | 96 | High |
| **Bluestone River** | 121 | Moderate |
| **South Branch Potomac River** | 130 | Moderate |
| **Guyandotte River** | 145 | None |
| **West Fork River** | 190 | None |
| **Monongahela River** | 149 | None |
| **Tug Fork** | 178 | None |
| **North Branch Potomac River** | 214 | None |
| **Shenandoah River** | 174 | None |
| **Birch River** | 221 | None |
| **Coal River** | 284 | None |
| **Mud River** | 373 | None |

| River | Avg. Alkalinity (mg/l) | Algae Development |
|---|---|---|
| Cheat River | 17 | None |
| Cherry River | 18 | None |
| Gauley River | 24 | None |
| Upper Greenbrier River | 30 | None |
| Lower Elk River | 35 | None |
| Tygart Valley River | 44 | High |
| Lower Greenbrier River | 54 | Severe |
| Cacapon River | 56 | High |
| South Branch Potomac River | 97 | Moderate |

# Similar Chemistry…

Tygart Valley River
Cacapon River
Bluestone River
New River
NF Hughes River
South Branch Potomac

# Tygart Valley River

| | |
|---|---|
| T. Phos | 0.035 |
| Alk | 20-50 |
| Hardness | 60 |

# Tygart Valley River

Alkalinity borderline
3-8 weeks
~ 5 miles impacted – AMD cuts short
Slack water below Beverly
Little/no complaints

# Cacapon River

| | |
|---|---|
| T. Phos | 0 .02-0.06 |
| Nitrate | .35 |
| Alk | 85 |
| Hardness | 112 |

# Cacapon River

Several miles throughout length
No large STPs
Higher background concentration
Sediment/RAV an important factor

# Cacapon River

- Several miles throughout impacted
  - Wardensville to Largent area
  - “Informal” complaints
- No major STPs
  - Higher “background” P-concentrations
- Sediment/RAV large factor

# South Branch

| | |
|---|---|
| T. Phos | 0.03 : 0.25 |
| Nitrate | 0.084 : 0.12 |
| Hardness | 141 |

# South Branch

| | |
|---|---|
| T. Phos | 0.03 : 0.25 |
| Nitrate | 0.084 : 0.12 |
| Hardness | 141 |

# South Branch

More complex: sediment & hardness, point & non-point, rooted vegetation & algae
Joint work w/ Ag in 2010: may be able to derive a number
?Looking at nutrients/release in sediment

# South Branch Potomac

- More complex
  - Sediment & Hardness
  - Point & Non-point
  - Filamentous Algae & RAV
- Lots of Data
- Looking at sediment release of nutrients

# New & Bluestone Rivers

# New & Bluestone Rivers

Not well documented;
need to study.

# *Future Work…*

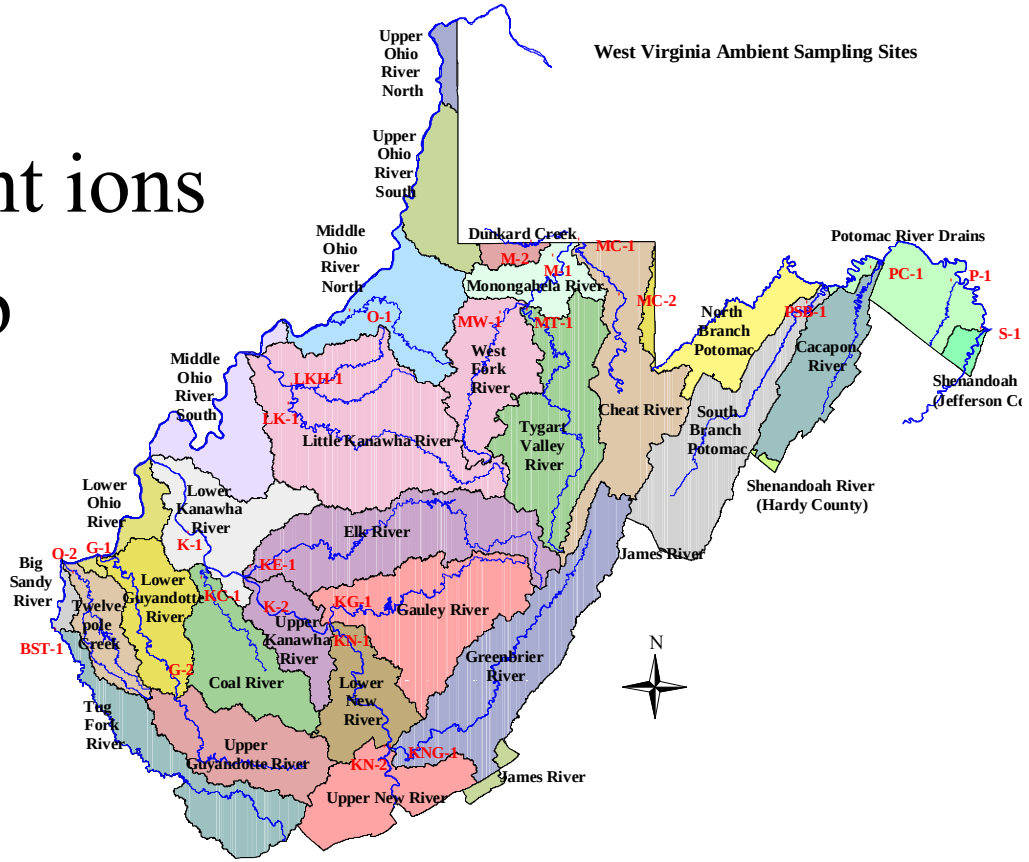
- Continue study on Greenbrier
  - WSS upgrade
- “How much is too much?” study
- New/Bluestone info
- Other streams?
  - Aquatic life

# Agency Updates
# EPA/ORSANCO

- EPA
  - New criteria:
    - Ammonia
    - Selenium (?)
    - Bacteria/Recreation Use
    - Ongoing nutrient work
- ORSANCO
  - Proposed standards - 2011

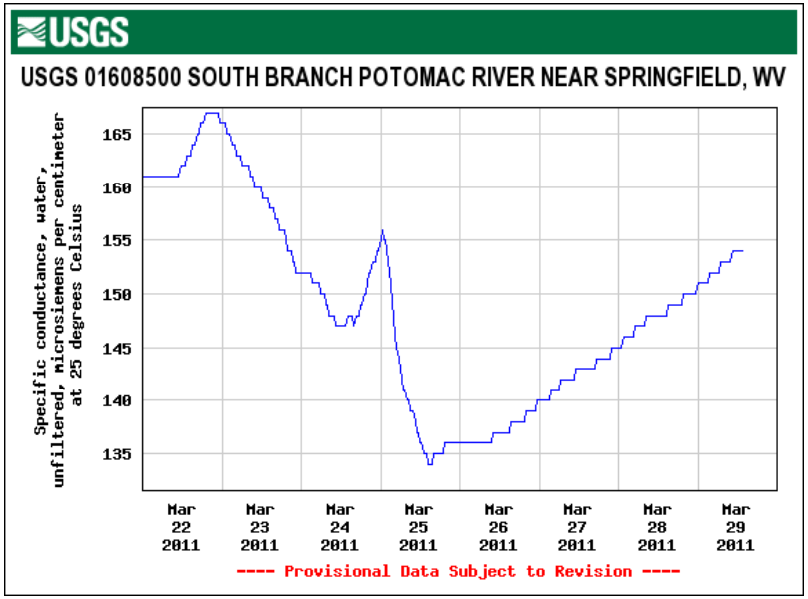
# Agency Updates
# DWWM - Watershed Assessment Branch

- Ambient monitoring (26)
  - Currently Bimonthly (Mon monthly)
  - Bromide (0/56)
  - TDS and component ions
  - Data headed to web



# Agency Updates
# DWWM - Watershed Assessment Branch

- Continuous Monitors w/USGS online
  - Varying combo's of pH, Temp, DO, Spec. Cond. and Turbidity
- South Branch Potomac, Cacapon, Greenbrier
- Monongahela, West Fk, Tygart, Dunkard
- Coming soon – Coal, Tug



# Agency Updates
# DWWM - Watershed Assessment Branch

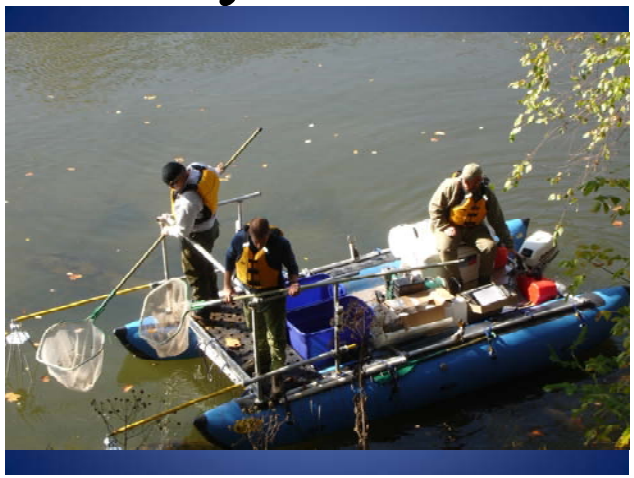
- ~40 Continuous Monitors by DEP (not online)
  - Acid Rain/Stream Liming w/DNR
  - AML Stream Restoration
  - S. Branch Potomac Fish Kill
  - TMDL Development
  - Other areas of interest

# Agency Updates
# DWWM - Watershed Assessment Branch

- 2010 Integrated Report/303(d) approved by EPA on February 8th, 2011
- http://www.dep.wv.gov/WWE/watershed/IR/Pages/303d_305b.aspx
- 2012 Report due 4/2012, call for data 7/2011

# Agency Updates
# DWWM - Watershed Assessment Branch

- MeHg sampling (~50)
- Fish Consumption Advisories
  - Joint effort w/ BPH and DNR
  - Original statewide survey being redone for Hg and PCB's
  - Completed by 8/2011, 2012 Advisory Update



# Thank you
# Next meeting - Late June, 2011
# Questions?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