

DEP Water Quality Standards Program Quarterly Public Meeting September 21, 2011

Protecting the environment depends on us.



Division of Water and Waste Management



Meeting Agenda/Overview

- Intro/WQS meeting purpose/goals
- DEP algae sampling - 2011 review
- Tier 3 overview
- WQS Program news/updates
- Other agency news/updates
- Open forum/adjournment



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
- No formal decisions/commitments



Meeting Purpose/Goals (cont.)

- Proposed 2011 schedule:
 - Quarterly*:
 - *March*
 - *June*
 - *September*
 - December (~mid-month)

*Will revisit schedule in December
- 2012 - every 4 months?





***Algae Sampling
2011 Efforts***

A scenic view of a river flowing through a lush, green forested valley. The river is in the foreground, with gentle ripples on its surface. The banks are covered in dense, vibrant green trees and shrubs. In the background, rolling hills and mountains are visible, also covered in forest. The sky is a clear blue with scattered white clouds. The overall atmosphere is peaceful and natural.

Algae
...a quick review...

- **Algae 101**

- **Filamentous (vs. *Toxic Blooms*)**

- **Increased nutrient concentrations (typically P)**

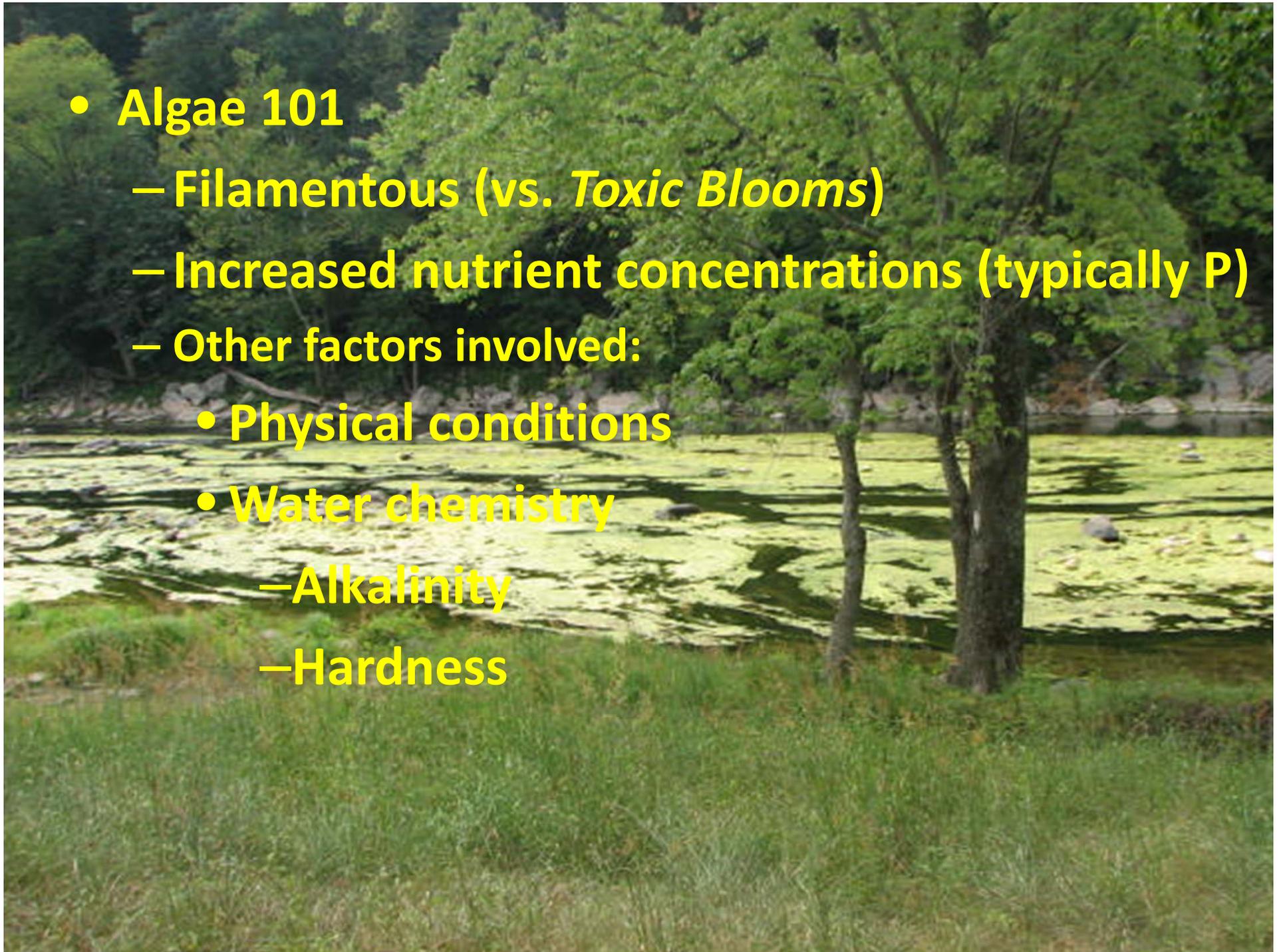
- **Other factors involved:**

- **Physical conditions**

- **Water chemistry**

- **Alkalinity**

- **Hardness**



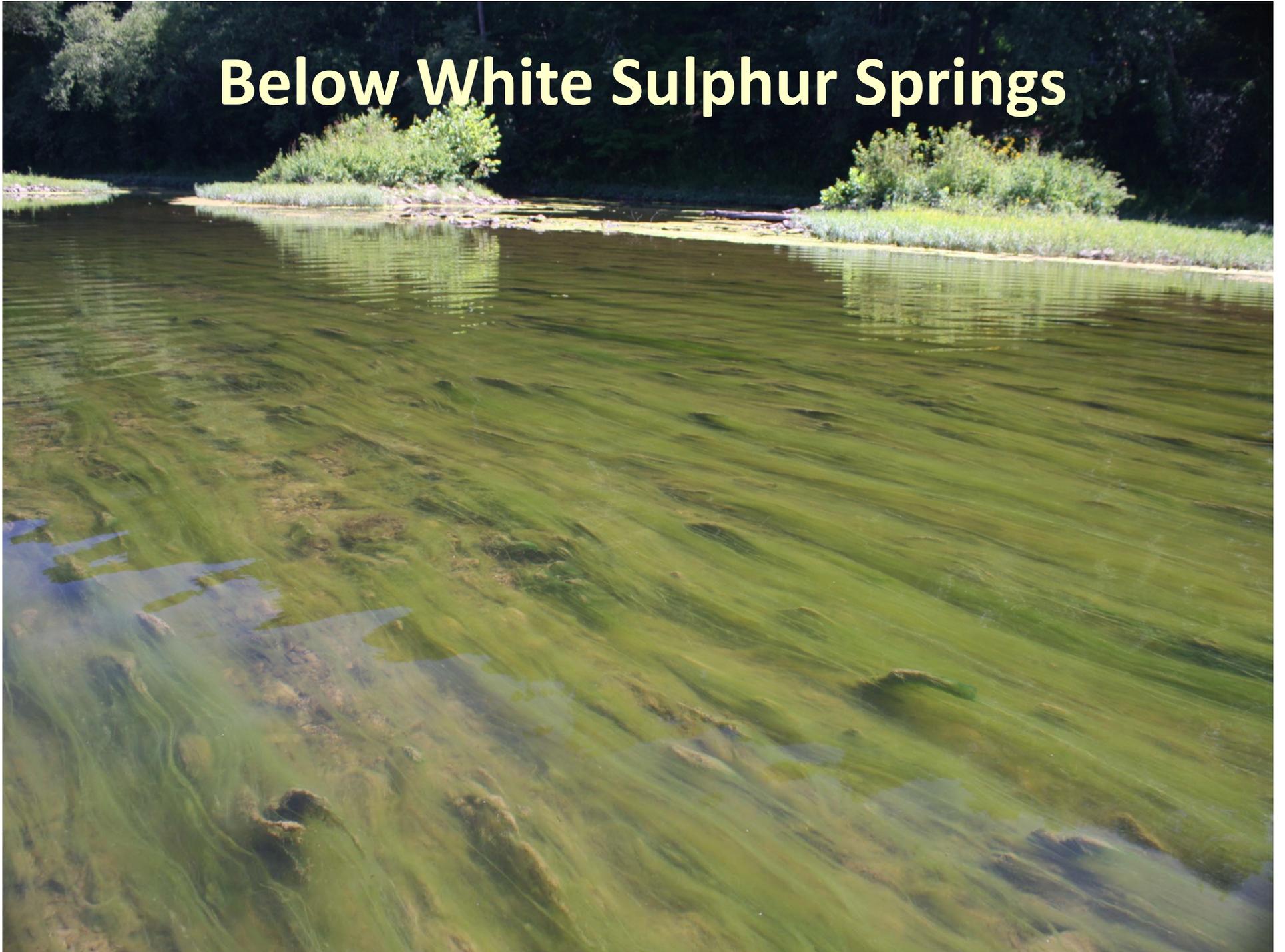
River	Avg. Hardness (mg/l)	Algae Development
Greenbrier River	65	Severe
North Fork Hughes River	63	Low ^T
Tygart Valley River	70	High
New River	79	Moderate ^D
Cacapon River	96	High
Bluestone River	121	Moderate
South Branch Potomac River	130	Moderate
Guyandotte River	145	None
West Fork River	190	None
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

Below Marlinton(2009)



Below White Sulphur Springs



Below Ronceverte



Cacapon River









- 
- **Impairment?**
 - **Narrative criteria**
 - **Recreation Use (C)**
 - **Drinking Water (A)**

Below Alderson

Algae 2011 Sampling

A quick review...

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



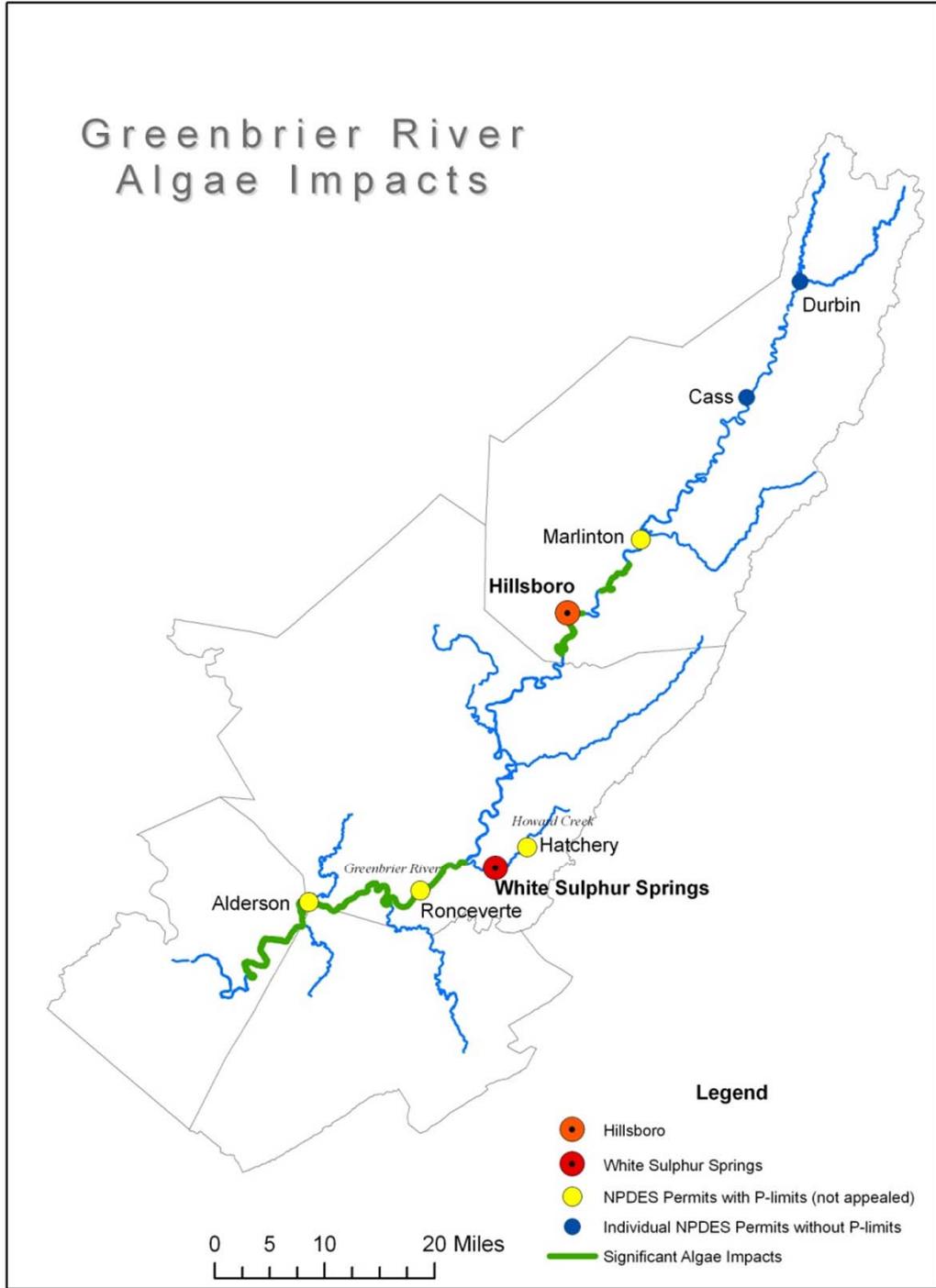
Algae 2011 Sampling

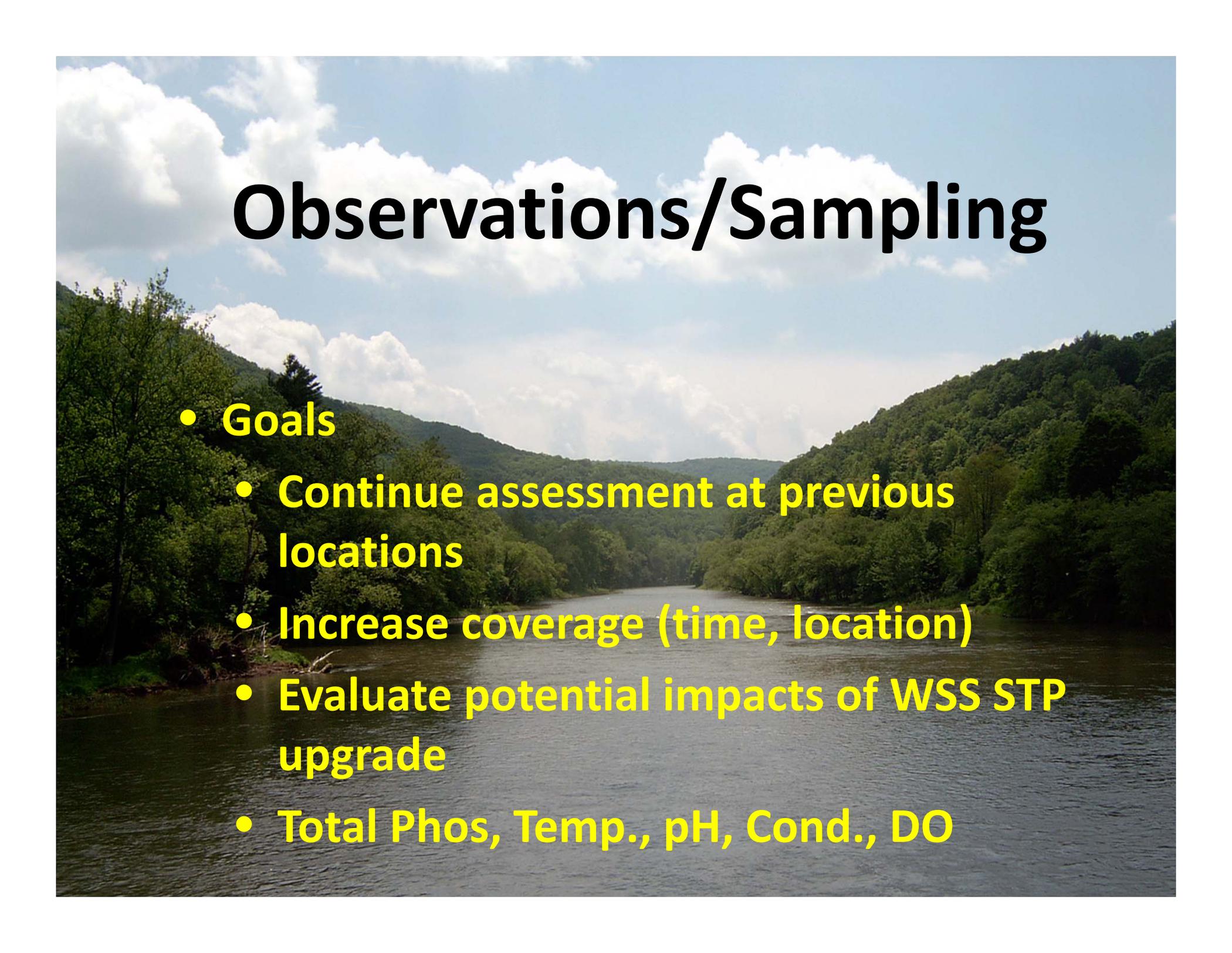
A quick review...(cont.)

- **Sampling efforts/methods varied**
 - **Greenbrier - continued sampling at previous sites**
 - **Bluestone - observation/scout potential problem sites**



Greenbrier River Algae Impacts





Observations/Sampling

- **Goals**
 - **Continue assessment at previous locations**
 - **Increase coverage (time, location)**
 - **Evaluate potential impacts of WSS STP upgrade**
 - **Total Phos, Temp., pH, Cond., DO**

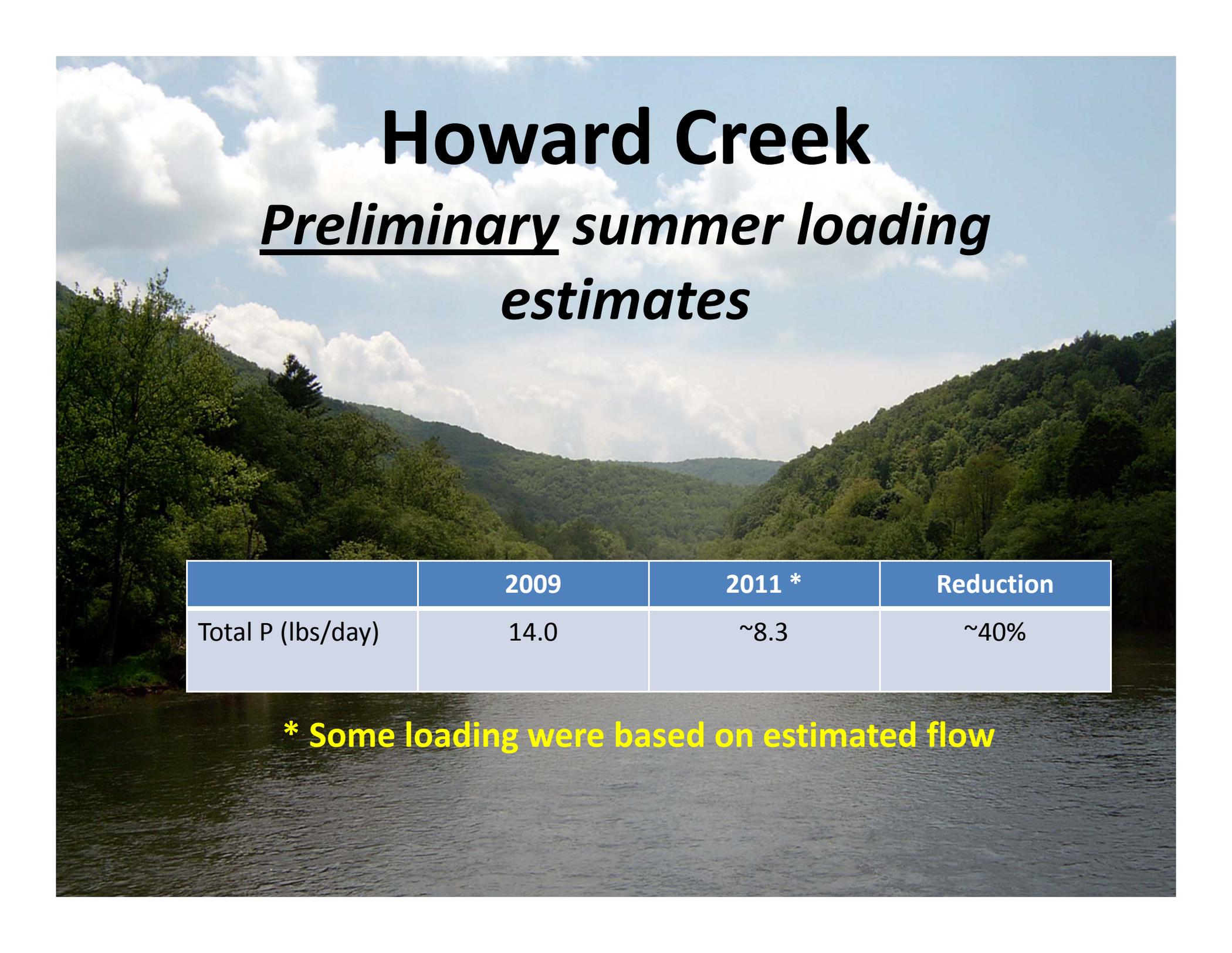


Algae 2011 Sampling

Greenbrier River

Observations/Sampling

- **Early June - Caldwell to Alderson**
- **Late June - Marlinton/Watoga**
- **Early July - Caldwell to Ronceverte**
- **Early August - Marlinton to Mouth**
- **Early September - Caldwell to Alderson**



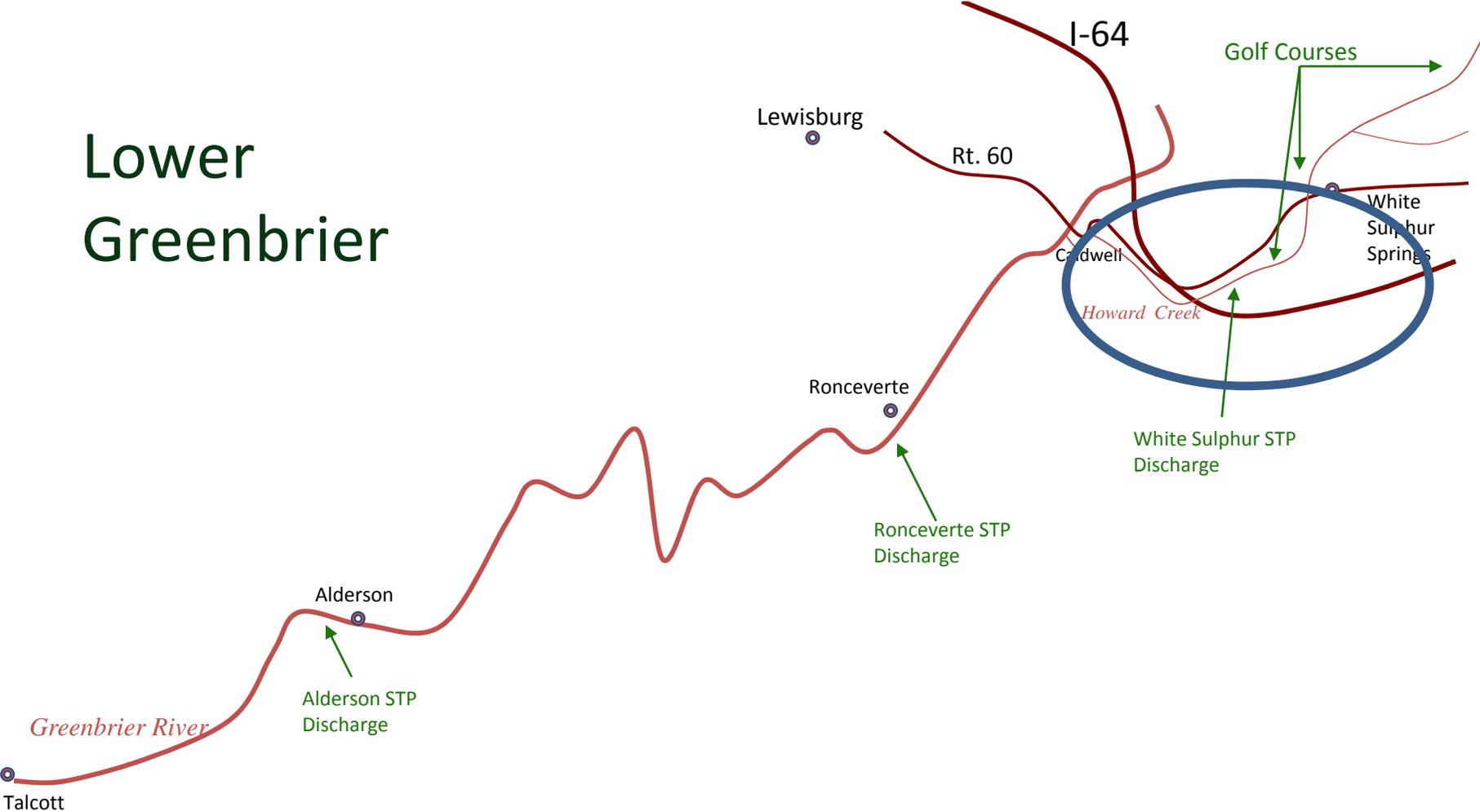
Howard Creek

Preliminary summer loading estimates

	2009	2011 *	Reduction
Total P (lbs/day)	14.0	~8.3	~40%

*** Some loading were based on estimated flow**

Lower Greenbrier



Greenbrier River ~ 1 mile below Caldwell – Howard Creek (White Sulphur Springs Discharge)



Observed robust algae growth for ~ 2 miles below Caldwell: though somewhat less than in years past

**Coffman Hill Road:
~ 1 miles above Ronceverte
(3 miles below Caldwell) - 9/4/2009**



**Coffman Hill Road:
~ 1 miles above Ronceverte
(3 miles below Caldwell) - 9/3/2011**

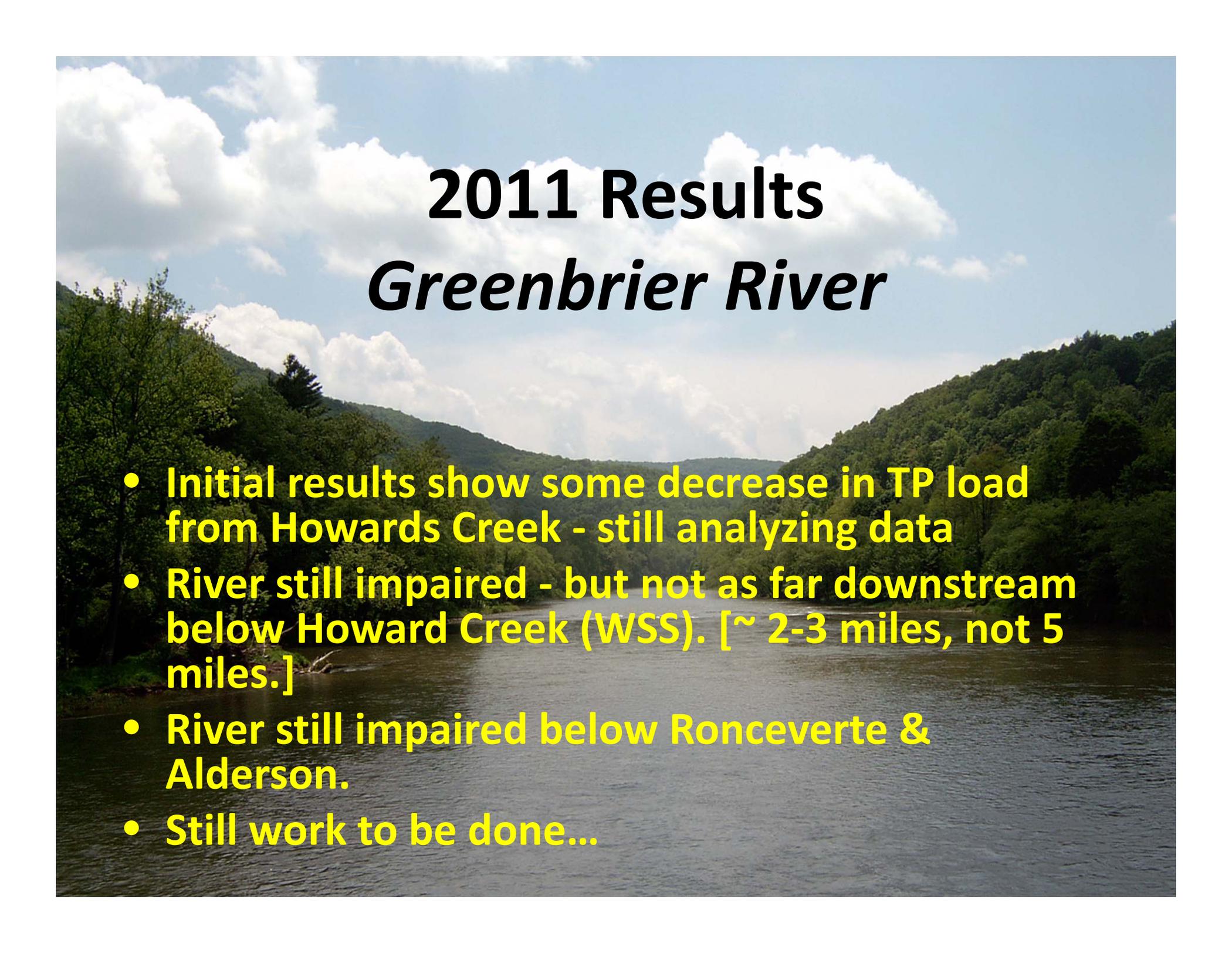
SAV – not algae



**Much less algae further
downstream...**

2009 – same location as previous slide, 2011 minimal observed algae





2011 Results

Greenbrier River

- Initial results show some decrease in TP load from Howards Creek - still analyzing data
- River still impaired - but not as far downstream below Howard Creek (WSS). [~ 2-3 miles, not 5 miles.]
- River still impaired below Ronceverte & Alderson.
- Still work to be done...

2011 Algae Sampling Bluestone River

- Algae blooms have been previously reported on the Bluestone River, but none in recent years
- DEP conducted one round of sampling/observation at four sites in August
- Samples collected at Nemours and Rock; Observation only at MontCalm and Kegley
- No significant algae observed at any of the sites, although aquatic macrophyte growth was heavy in the vicinity of the Bluewell PSD WWTP discharge at Montcalm



Bluestone @ MontCalm



Bluestone @ Nemours



2011 Algae Sampling State Survey

- Questions raised during legislature, appeal outcome request to answer:

“How much is too much?”

- DEP procuring contractor to preform survey
 - Statewide survey
 - Sample wide range of individuals/users
 - Updates during future WQS meetings, results will be published



Questions?



Tier 3 Update Nomination

What is a “Tier 3” stream?

... "outstanding national resource waters" include waters in Federal Wilderness Areas, specifically designated federal waters, and high quality waters or naturally reproducing trout streams in state parks, national parks, and national forests...

- 47CSR2 4.1.c. (46CSR2) & 60CSR5 & 47CSR2A
- Interested parties can nominate waters for Tier 3 designation
 - 60CSR5 outlines procedures for nomination process



Tier 3 Update Nomination (cont.)

- November 2009 - Nomination of Watkins Run, Fill Hollow, UT to Fill Hollow by Friends of Laurel Mt.
- DEP conducted review and required outreach to landowners
- Based on information:
 - Watkins Run designated as Tier 3, others not at this time (but can be in the future)
 - Will post info on WQS page website & revisit at future WQS meeting



WQS Program Update

- 47CSR2
 - Submitted to EPA - approval of what/when (?)
- Remining Variance (46CSR6)
 - Thacker Creek - Mingo County
 - Comment period open, Hearing 10/3/11 @6pm
 - Materials posted and can be requested (call or email)



WQS Program Update

- Other activities
 - Review of numerous applications...

“Modifications to WQS”

- Allowed by CWA (flexibility), numerous “tools” available - depends on situation
 - UAA, Site-specific, Variance
- Any in WV? Yes, all in the Rule - and being updated on WQS website



Modifications to WQS

- EPA provides guidance in CWA and in WQS handbook
- WV Rules basically mirror federal guidance
- Process outlined in 47CSR2 & 46CSR6:
 - Cumbersome, timely, consistency?
 - Varies from State 2 State, Region 2 Region, Year 2 Year...
 - Can be a “*frustrating process*”
(*no laughing please*)



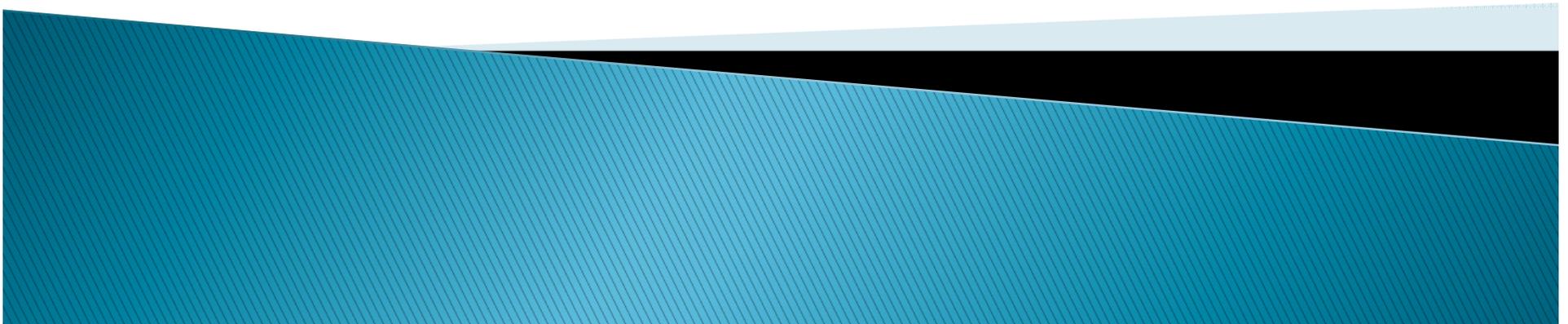
Modifications to WQS (cont.)

- Example
 - October 2010 - Site specific application for Zinc
 - Initial review by DEP and EPA (why EPA?)
 - Bring in early to get feedback, comments, expertise...
 - Allows for initial feedback on potential for final approval!



Zinc Site-Specific Application

West Virginia American Water



Background

- ▶ On September 29, 2008 WVAW acquired the Fayetteville Water and Wastewater Systems
- ▶ New NPDES Permit: Zinc Limit for outlet on Marr Branch was 0.058 mg/L.
- ▶ WVAW realized that meeting this limit would be problematic, entered into Consent Order #6540- granted two year period of monitor only for zinc



Two pronged approach to resolve issue

Potable Water System Changes:

- ▶ Change Corrosion Inhibitor:
 - Must feed corrosion inhibitor to meet terms of lead and copper rule
 - Corrosion inhibitor used at New River plant: 1:3 zinc orthophosphate
- ▶ Zinc Plan of Action submitted to DEP On December 12, 2008
 - Petitioned WVBPH to switch to 1:10 ZOP
 - Permission granted and change made on December 17, 2008
 - Anticipated reduction in zinc levels were not realized
- ▶ Check for galvanized mains in the system
 - Some exist but could not be linked to elevated zinc levels



Two pronged approach to resolve issue

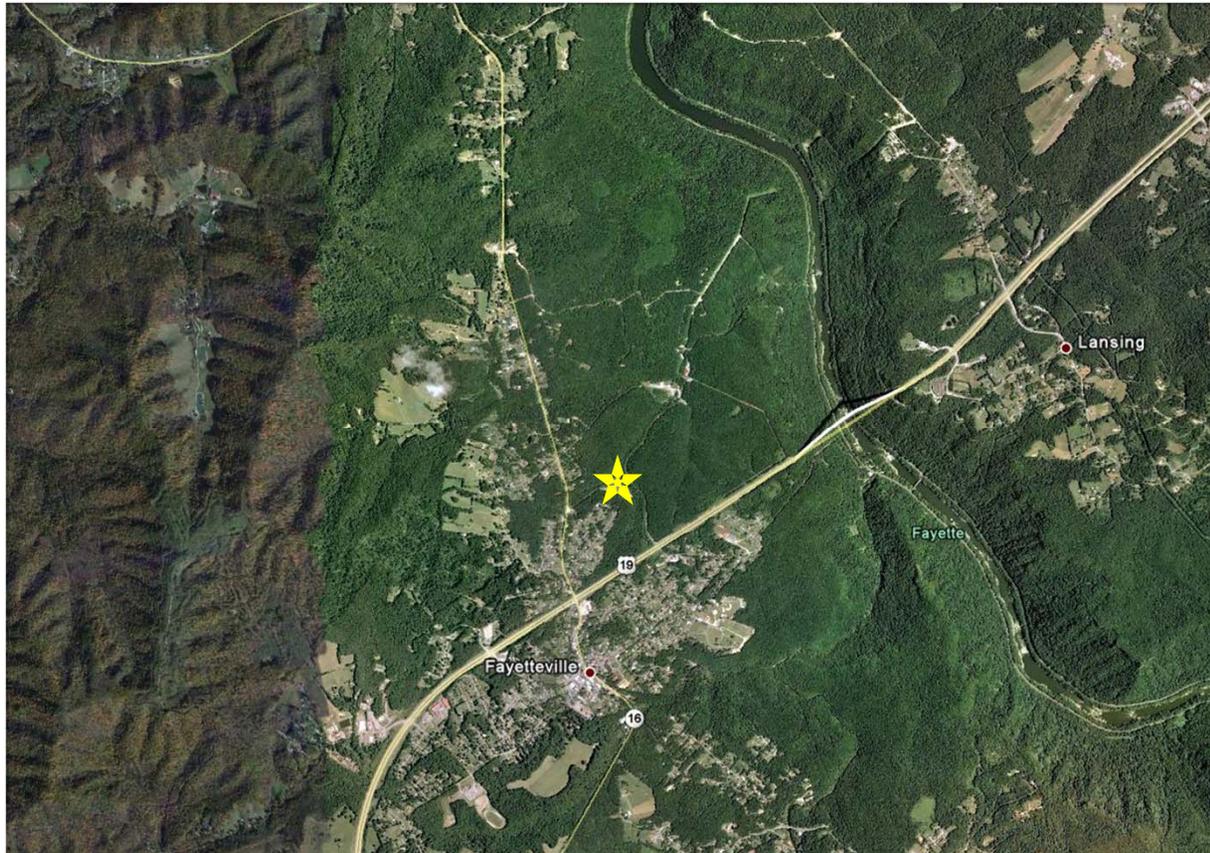
Receiving Stream Analysis

- ▶ WQ study on receiving streams
- ▶ Zinc Translator Study on Marr Branch
 - Data collected June 2008 – January 2009
 - February 17, 2009 Submitted to DEP
 - Results: Ave Monthly Limit 0.080 mg/L, Max daily Limit 0.121 mg/L
 - By June 2009 zinc value approached the 0.080 mg/L limit
- ▶ Reasonable Potential Study conducted – no relief on limit

- ▶ Consultation with Henthorn Environmental – Site Specific Criterion Study only option left, sampling began in June 2009
 - Submitted to DEP in October 2010
 - Obtained “monitor only” extensions while Site Specific Criterion Study has been under review



Marr Branch



Marr Branch



What to do about zinc?

Site Specific Criteria Options

- ▶ WER?
 - Expensive
 - Do not know what results will be
- ▶ Recalculation Procedure?
- ▶ Other Options?



Site-Specific Application

- ▶ Submit application to DEP for review
 - Map with stream segment and all outlets
 - Water quality data
 - General land uses
 - Existing and designated uses of stream
 - General physical characteristics of the stream
 - Flow of the stream
 - Aquatic life assessment of the stream



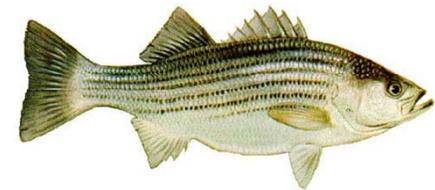
Site-Specific Application

- ▶ Zinc criteria based on hardness equation
- ▶ Equation derived from many species
- ▶ **Recalculation Procedure** – remove species not present in Marr Branch
- ▶ Recalculate equation
 - New Slope
 - New y-intercept



Comments on application

- ▶ Consulted DEP and EPA regarding species list for Marr Branch
 - Striped bass removed from calculation → no striped bass in or near Marr Branch
- ▶ Discuss any other issues/concerns with application – iterative process



Site-specific hardness dependent zinc equation

- ▶ New equation – developed like equation in guidance except no striped bass
 - Redid EPA calculations to confirm that methodology is correct
- ▶ Use average hardness in Marr Branch in equation
- ▶ Site-specific criteria still under review by DEP





DEP - DWWM Update

- TMDLs
 - Numerous TMDL meetings held, information posted
 - More info found on TMDL website (via DEP DWWM page)
- Data Request - 2012 Integrated Report
 - Deadline for submission October 17, 2011
 - Details found on DWWM webpage



Agency Updates

EPA/ORSANCO

- EPA
 - Bacteria/Rec Use Stakeholder Webinar (September 20, 2011) - New/Revised Criteria Presented - Final ? (~2012)
 - Numerous criteria still pending (?)
- ORSANCO
 - TDS - adopted - October 2011 meeting
 - Bromide group formed (includes TDS and Mg review/analysis)



Thank you
Next meeting - December 2011 / January 2012
Questions?

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