

# Bacteriological Sampling of High-Use Sites on the Upper Cahaba River



# IS IT SAFE TO SWIM HERE?

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# THE PROBLEM

**Timely data on bacteria levels in the Cahaba River were not readily available in 2014 to answer that question**



# THE PROCESS

- **Alabama Water Watch Bacteriological Monitoring Protocol**
- **Simple, cost-effective, approved by EPA (1999) and ADEM**
- **All team members AWW certified**



# EPA WATER QUALITY STANDARDS FOR BACTERIA IN PUBLIC RECREATIONAL WATERS

**Max. allowable *E. coli* per 100 mL of water:**

- **300 for a moderately used site**
- **400 for a lightly used site**
- **600 for a rarely used site**



# ALABAMA WATER WATCH MEASURE

**Allowable *E. coli* per 100 mL of water:**

- **<200 safe for frequent human contact**
- **200-600 max for infrequent human contact**
- **>600, unsafe for human contact**



# EIGHT SITES HEAVILY USED FOR SWIMMING AND BOATING SELECTED

- **Trussville Springs**
- **Grants Mill Road**
- **Overton Road**
- **Hwy 280 Bridge**
- **Old Looney Mill Road**
- **Caldwell Mill Road**
- **Lorna Rd/Old Montgomery Hwy**
- **Buck Creek, Helena**



# **EIGHT WEEKS, JULY-SEPTEMBER, 2014**

- 3 samples taken at each of 8 sites**
- 1 mL sample added to Coliscan medium**
- Coliscan plated / incubated <48 hrs**
- Results posted each Friday to CRK's Facebook and Twitter pages**





# *E. COLI* COUNTS, 2014

- With the exception of Grant's Mill, all 8 sites had *E. coli* counts  $\geq 200$  in one or more samples
- Buck Creek site was in “caution” or “unsafe” in 8 of 8 weeks
- Two of “unsafe” weeks: 1400 and TNC



# Grant's Mill Road, Leeds AL

OBS Week	E. Coli Count	Other Coliforms	DO	% Sat	Water Temp	Comments
1	0	6	7.4	95	27	Little rain prior 2 wks
2	1	13	8.1	104	27	Moderate rain falling
3	0	14	8.3	109	28.5	Sunny
4	0	3	8.4	110	28	Water level low
5	1	20	7.5	100	29	Water level low
6	1	12	7.8	102	27	
7	1	8	DNC	NA	30	Light rain day before
8	0	14	8.1	109	30	Orange muddy water

E. coli v. Time

Plot

Sites

Groups

WSheds

Aerial Photo USGS

Link

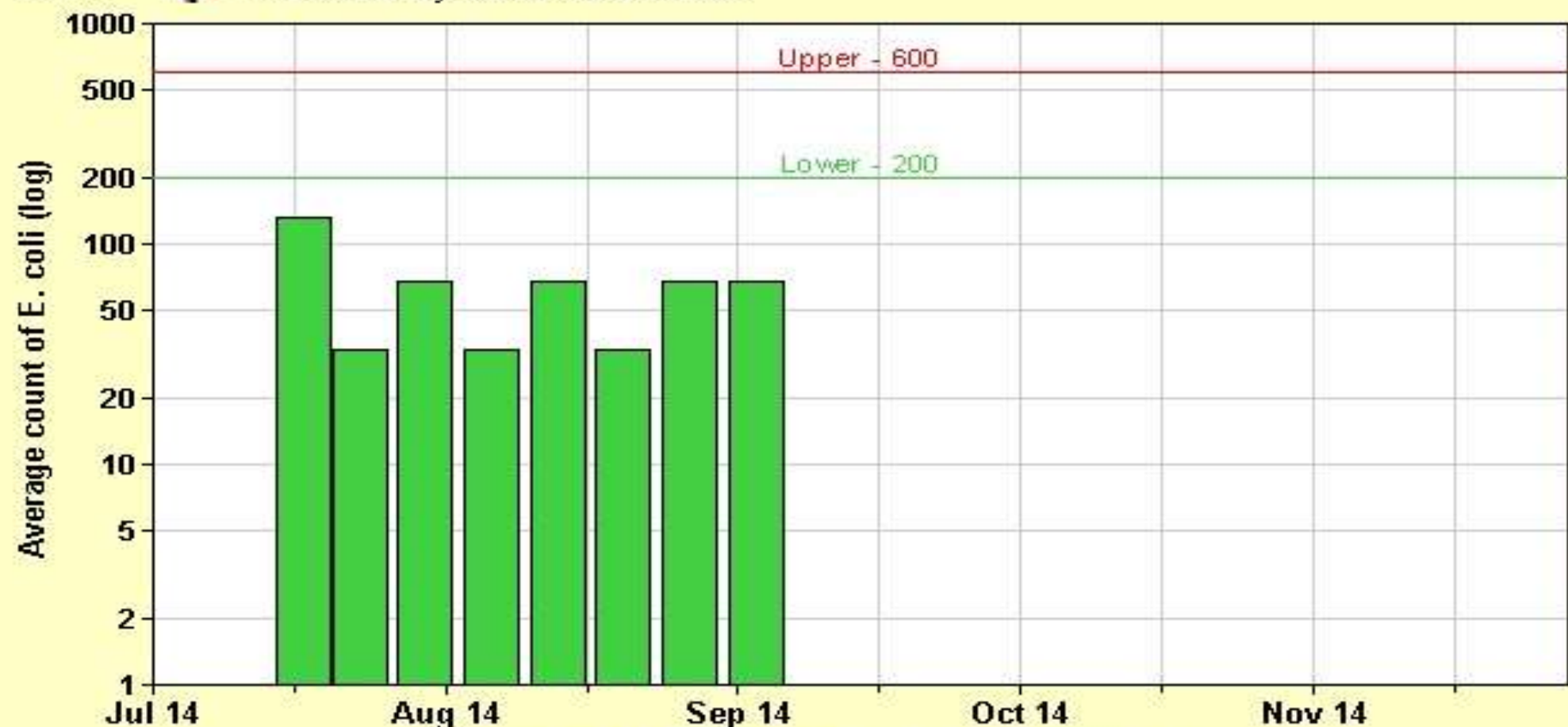
From: Jul 2014

To: Sep 2014

Reset

☐ Graphs helpNo. of E. coli  
colonies per  
100 mL

> 600 relatively unsafe for human contact  
200-600 increasing risk for human illness  
< 200 relatively safe for human contact



E. coli for AWW Site: 02039003 in Jefferson County

Cahaba River, located in the Cahaba watershed, No. of Samples: 8

Latitude: 33.621265 N, Longitude: -86.594635 W Hydrologic Unit Code (HUC11): 031502020104



# THE BUCK CREEK ANAMOLY

- Buck Creek flows through Helena's highly used Ampitheater Park
- Samples taken at the falls, down stream boat launch, and outflow of the Helena WWTP
- Access sites samples revealed *E. coli* counts in "caution" or "unsafe" range in 8 of 8 weeks



# UNUSUAL CHEMICAL FINDING

- **Foamy scum documented at Looney Mill site on two occasions (Wk 3 & Wk 8)**
- **Site is downstream of the Riverview WWTP**







# SUPPORTING EVIDENCE

On date concurrent with scum finding, upstream homeowner, across from Riverview WWTP, reported:

- discharge from outflow pipe
- chlorine smell
- sick dog
- fish kill





# FOLLOWUP AT RIVERVIEW

- **Unauthorized chlorine used to clean plant's clarifier**
- **Before release, sodium dioxide used to neutralize chlorine, creating scum**
- **RWWTP visited by ADEM, found out of compliance, allowed to resubmit permit**



# SUMMER 2014 CONCLUSIONS

- Prolonged sun & shallow water = fewer E. coli
- Rain washes in effluent from nonpoint sources
- Buck Creek area perpetually in “caution” or “not safe for human contact” while all waste treatment plants report permit compliance



# DISSEMINATION

- **Pertinent results posted each Friday**
- **Facebook & Twitter**
- **Alabama Water Watch database**
- **Waterkeeper Alliance Swim Guide**



# WHAT WAS NEXT?

- **Bacteriological sampling conducted Summer 2015 at original 8 sites**
- **Several upstream Buck Creek sites added**
- **Testing period extended to 15 weeks**

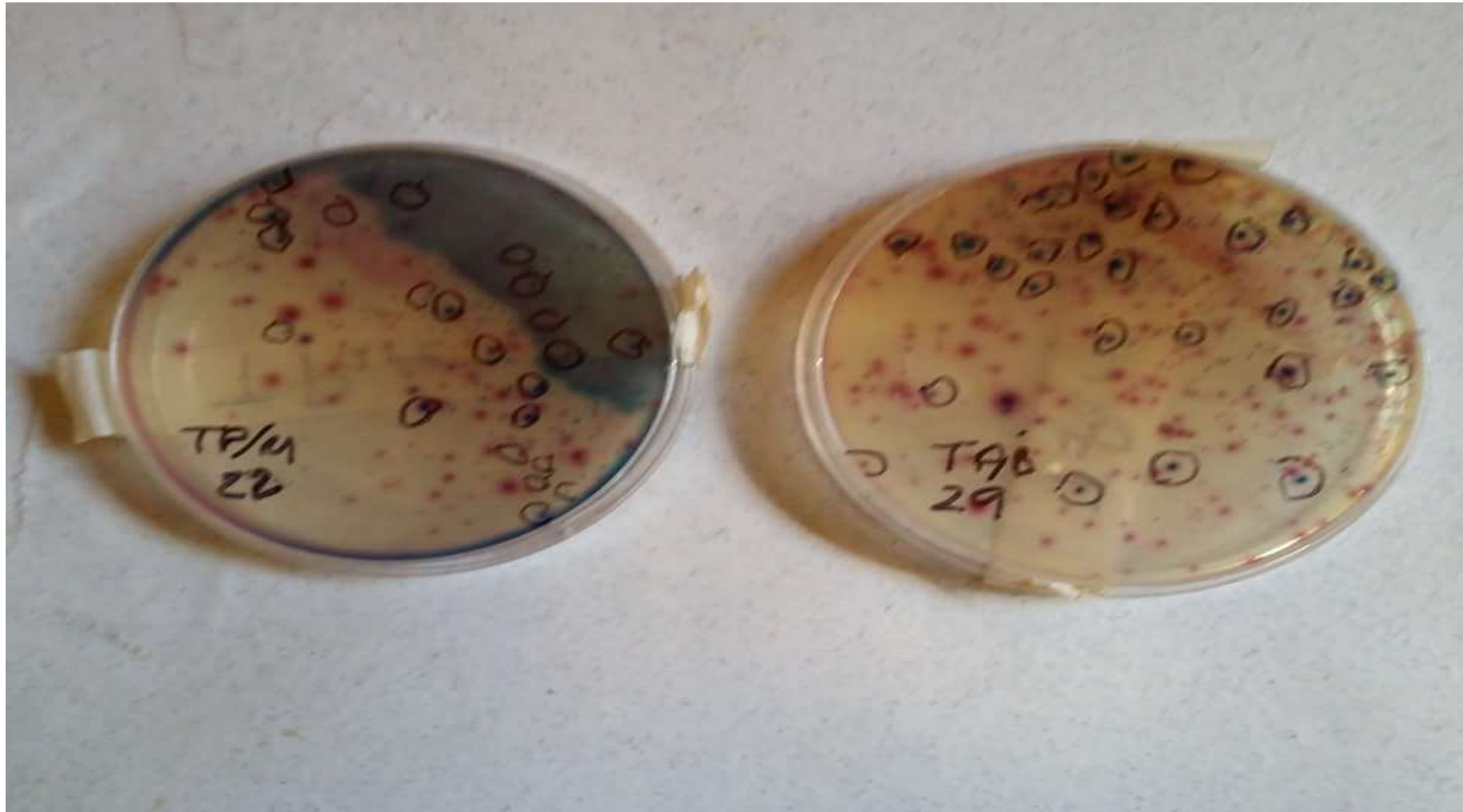


# PRELIMINARY 2015 RESULTS

- **Sites upstream of Hwy 280 bridge clear all but one week of 15**
- **Buck Creek clean 1 week; “caution” 9 weeks; “unsafe” 5 weeks**

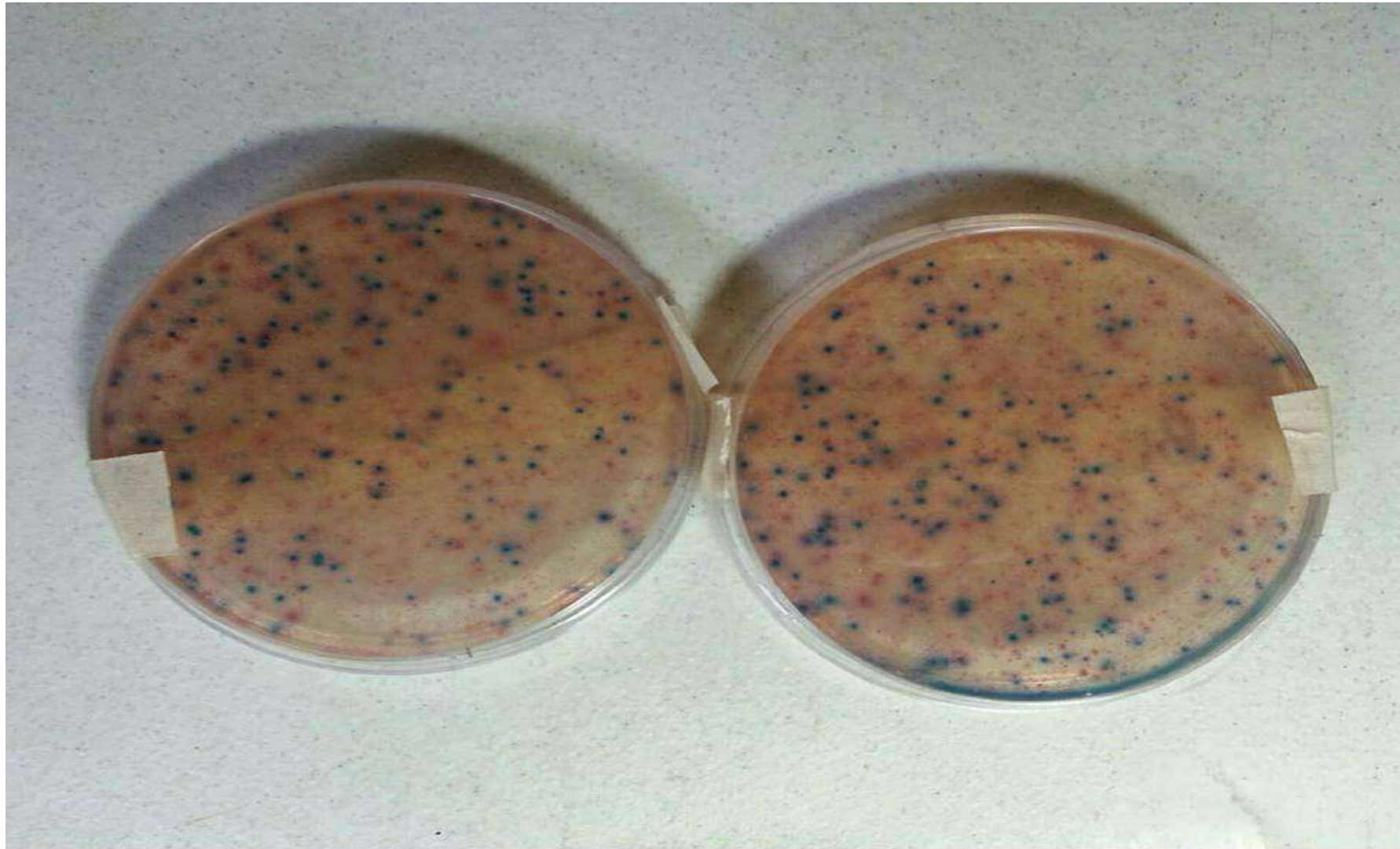


# Cahaba Valley Creek, May 22, 2015





# BUCK CREEK, JUNE 12, 2015















# ANOTHER UNEXPECTED FINDING

- **4,000 plus gallon sanitary sewer overflow (SSO) from Pelham Waste Water Treatment Plant upstream, July 22, 2015**
- **No Alabama law or regulation that requires that the public be notified of a spill**







*Leitham*

**WASTEWATER PLANT**

800

NO  
THRU  
TRAFFIC

# THANK YOU

- **Homeowners for bank access**
- **Alabama Water Watch, data assistance**
- **Cahaba Riverkeeper volunteers**





