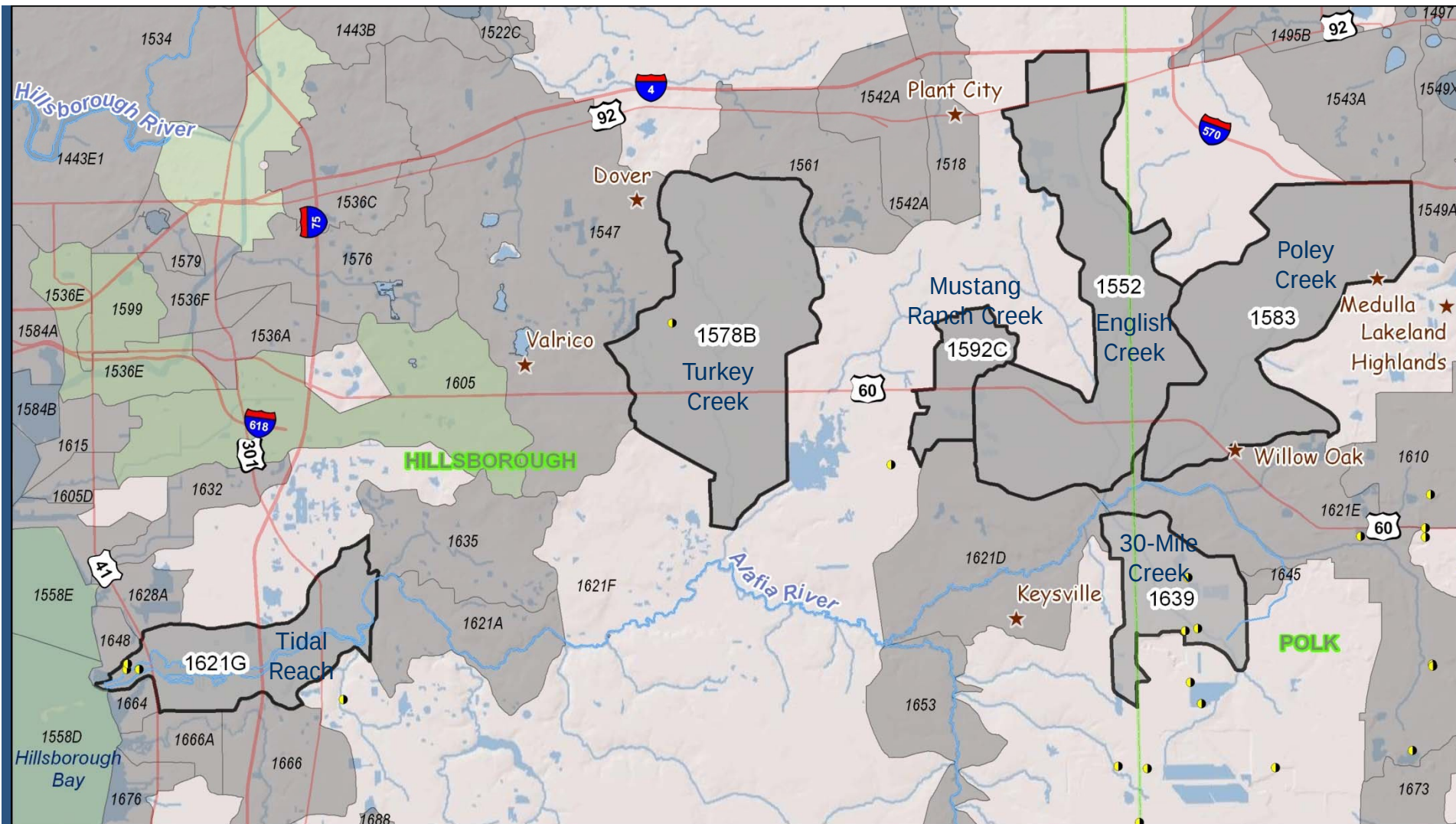


Fecal Coliform WBIDs

Correlation and Regression Analyses to Support MOT and WTW Exercises

Alafia River BMAP meeting

Oct. 20, 2011



Alafia River Impaired WBIDs



5

Miles

NPDES Discharge Permits

Cities

Counties

Major Rivers

Interstate

Primary Highways

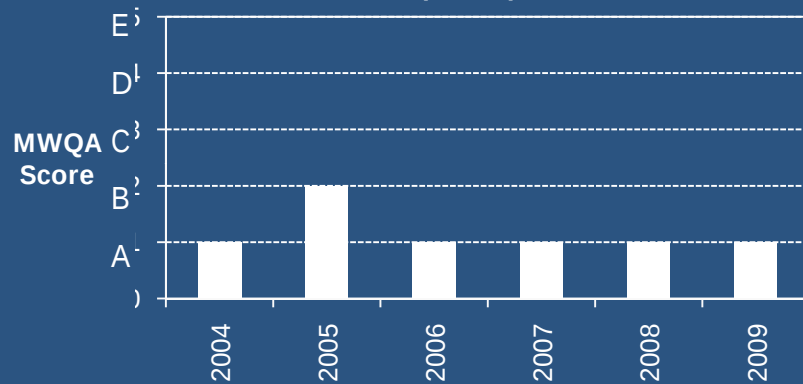
Alafia WBIDs

De-listed WBIDs

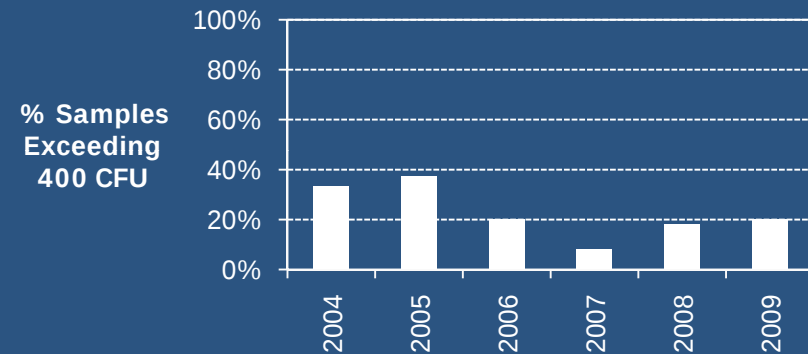
Verified Impaired WBIDs (run 43)

Poley Creek (WBID 1583)

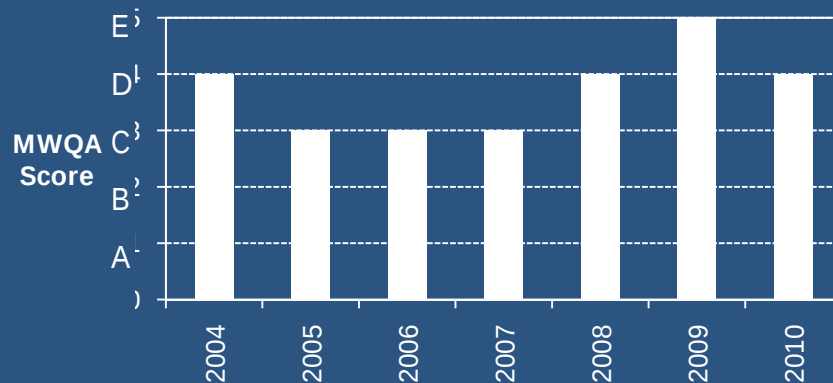
Polk Co. Sta. PC-S2
(SR 60)



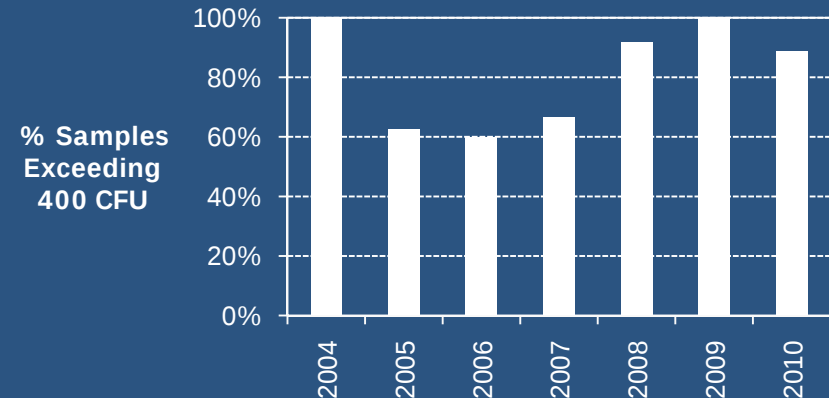
Polk Co. Sta. PC-S2
(SR 60)



Polk Co. Sta. PC-N1
(Pipkin Road)



Polk Co. Sta. PC-N1
(Pipkin Road)



Correlation and Regression Results

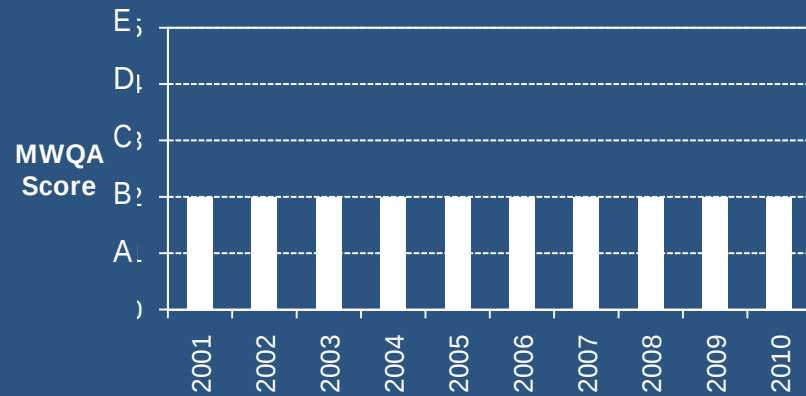
- Poley Creek at SR 60
 - Polk Co. Sta. S2
 - Median FC (2001 – 2010) 250 CFU/100 mL
 - MWQA scores A-B
 - FC inversely correlated with conductivity, positively correlated with color
 - Regression – conductivity is only significant explanatory variable ($R^2=0.31$, $p<0.005$)
 - Inference – R^2 low, but sources may be associated with surface runoff (low conductivity, high color)

Correlation and Regression Results

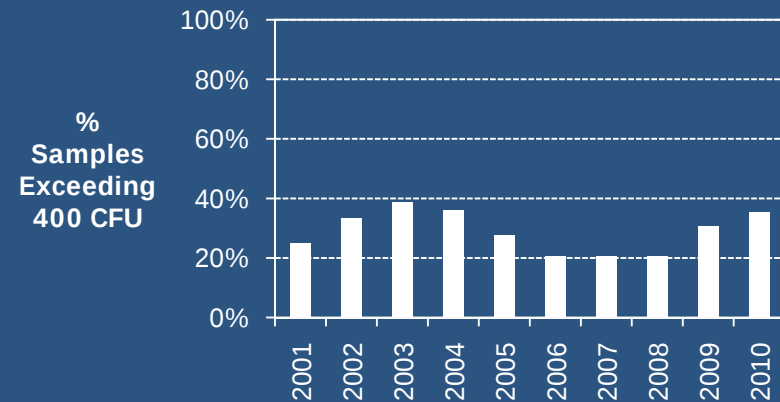
- Poley Creek at Pipkin Road
 - Polk Co. Sta. N1
 - Median FC (2001 – 2010) 665 CFU/100 mL
 - MWQA scores C-D-E
 - FC positively correlated with conductivity, inversely correlated with color
 - Regression – conductivity is only significant explanatory variable ($R^2=0.29$, $p<0.005$)
 - Inference – R^2 low, but sources may be associated with groundwater (high conduct., low color), or a constant source that is diluted by surface runoff

English Creek (WBID 1552)

EPC Sta. 154
English Creek at SR 60



EPC Sta. 154
English Creek at SR 60

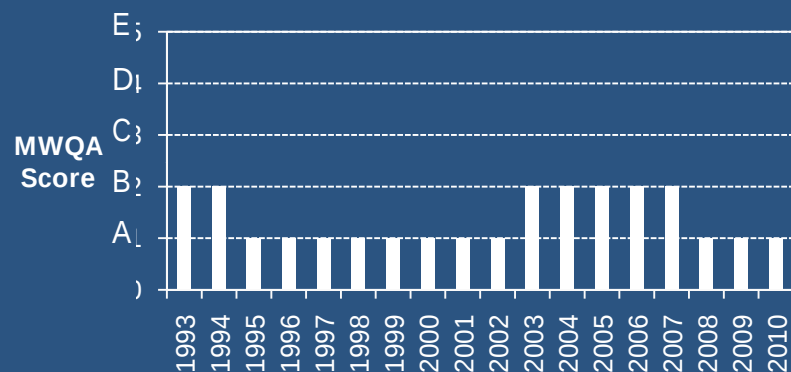


Correlation and Regression Results

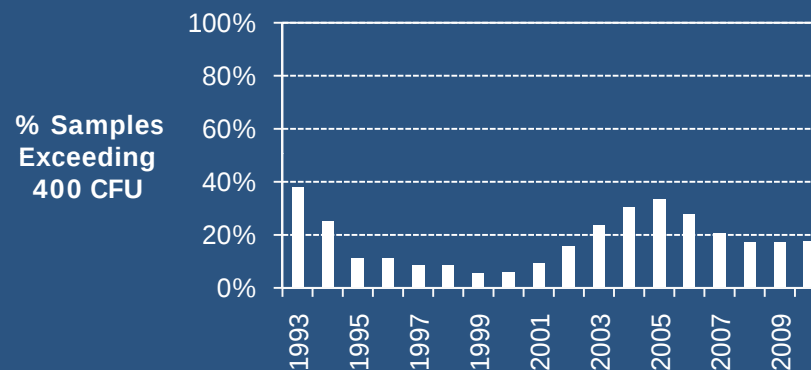
- English Creek at SR 60
 - EPCHC Sta. 154
 - Median FC (2001 – 2010) 280 CFU/100 mL
 - MWQA scores B
 - FC inversely correlated with conductivity
 - Regression – conductivity is only significant explanatory variable ($R^2=0.13$, $p<0.005$)
 - Inference – R^2 very low, but sources may be associated with surface runoff (low conductivity)

Turkey Creek (WBID 1578B)

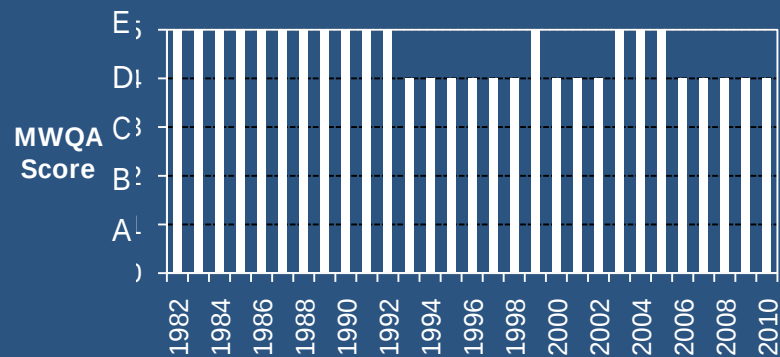
EPC Sta. 151
Durant Road



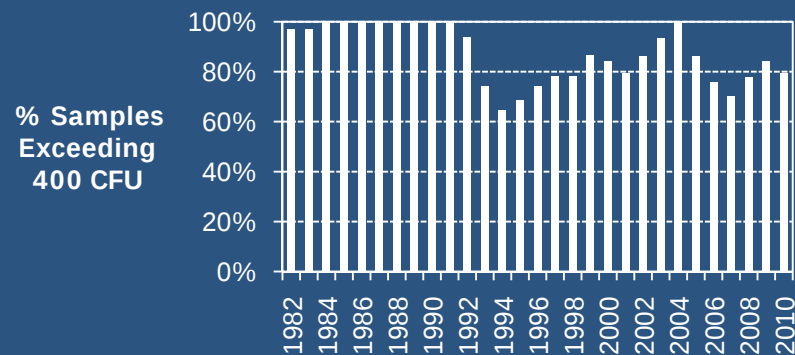
EPC Sta. 151
Durant Road



EPC Sta. 111
SR 60



EPC Sta. 111
SR 60



Correlation and Regression Results

- Turkey Creek at Durant Road
 - EPCHC Sta. 151
 - Median FC (2001 – 2010) 160 CFU/100 mL
 - MWQA scores A-B
 - FC positively correlated with water color, inversely correlated with conductivity
 - Regression – Color is only significant explanatory variable ($R^2=0.21$, $p<0.005$)
 - Inference – R^2 low, but sources may be associated with surface runoff (higher color)

Correlation and Regression Results

- Turkey Creek at SR 60
 - EPCHC Sta. 111
 - Median FC (2001 – 2010) 1,150 CFU/100 mL
 - MWQA scores D-E
 - FC positively correlated with turbidity
 - Regression – no significant explanatory variables
 - Inference – large source that varies independently of all other WQ variables