URBAN BAYOU BACTERIA SOURCE IDENTIFICATION STUDY

Sponsored by

TEXAS CLEAN RIVERS PROGRAM

HOUSTON-GALVESTON AREA COUNCIL

PBS&J

THE UNIVERSITY OF TEXAS AT AUSTIN

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Monitoring Performed by

TNRCC

City of Houston Department of Health and Human Services

CITY OF HOUSTON TEXAS

OBJECTIVES

- Use evolving DNA analysis technology to support TMDL process
- Combine routine agency monitoring with DNA analysis by Polymerase Chain Reaction (PCR) to shed light on sources of high bacteria levels
- Advance the science and understanding of indicator bacteria

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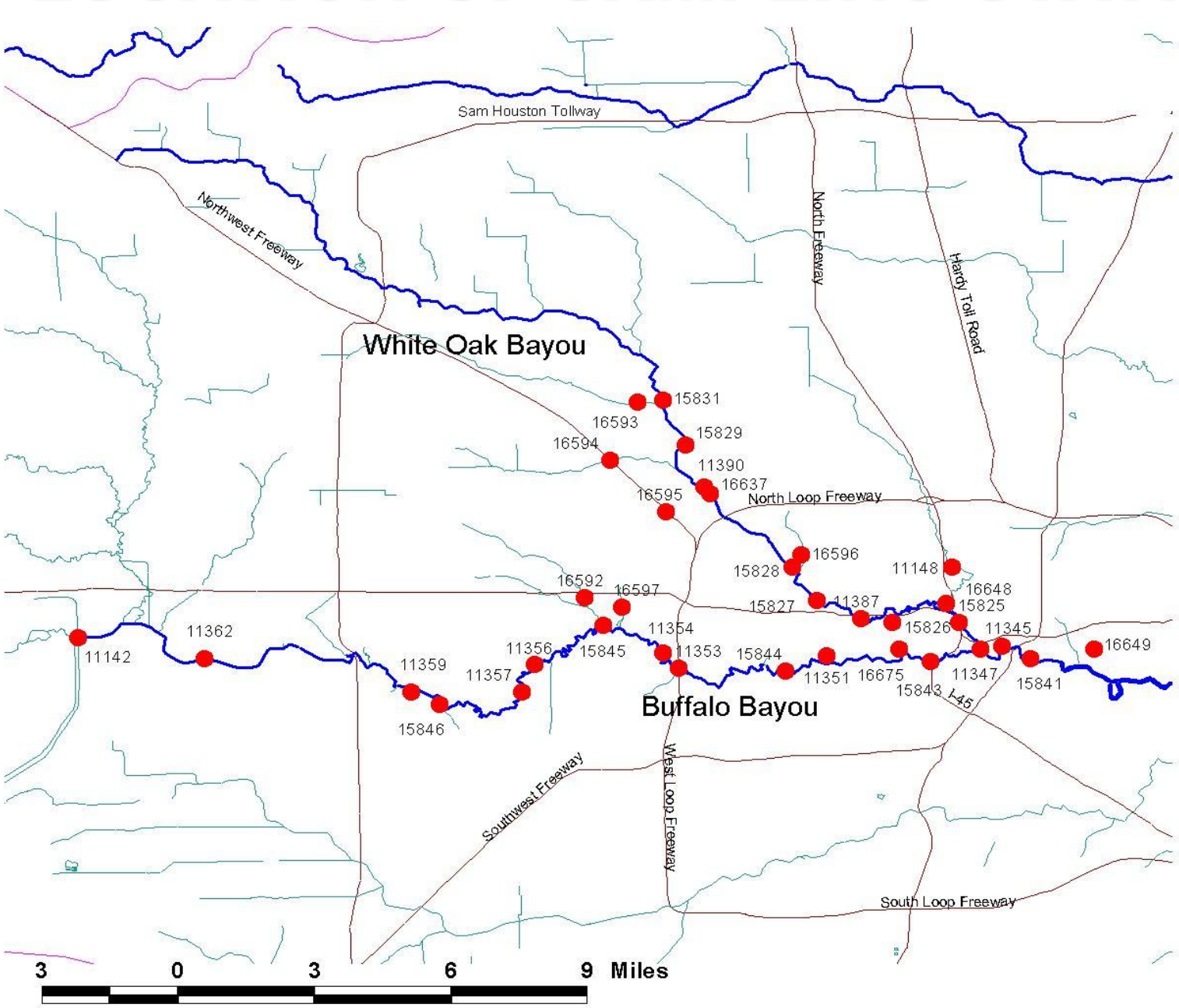
CHALLENGES

- Bacteroides are strict anaerobes with two species closely associated with humans
- At low flow, essentially all water in Buffalo and White Oak Bayous is treated wastewater
- Bayou waters are turbid, which has been found to interfere with PCR

LOCATION OF SAMPLING STATIONS



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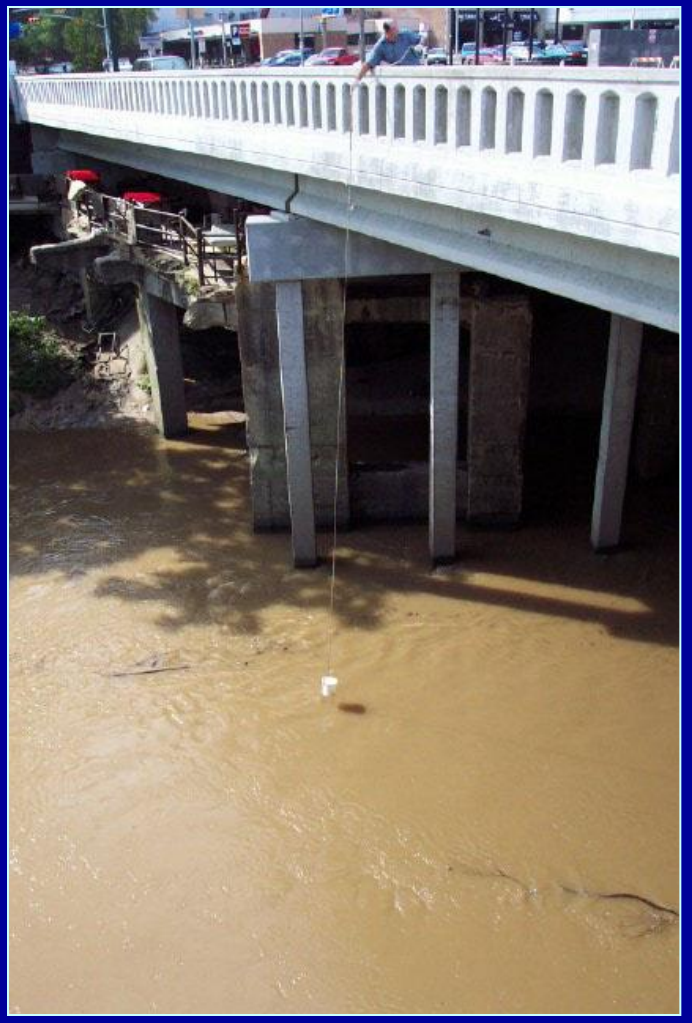
Buffalo Bayou at Westcott

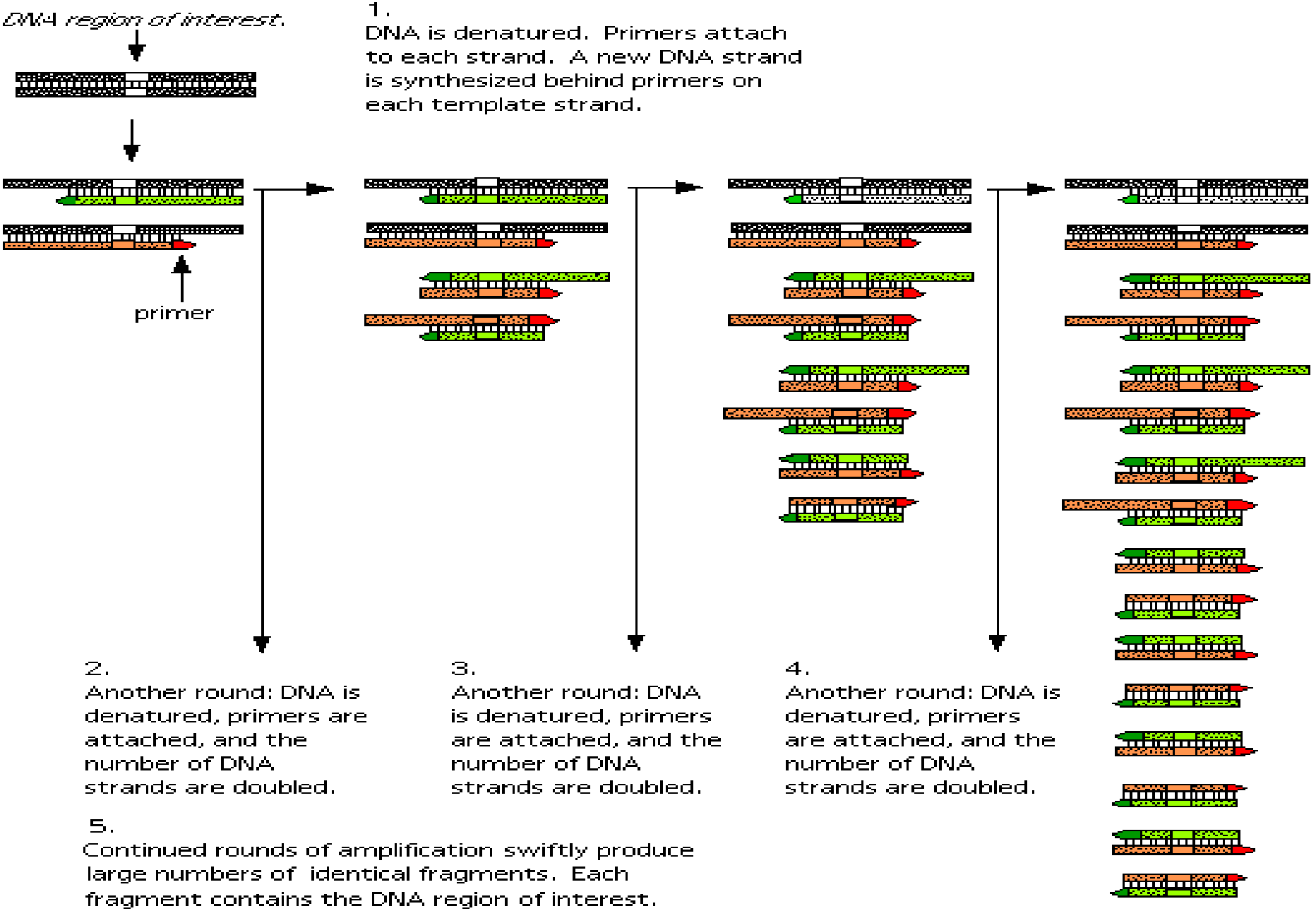
White Oak Bayou at Heights

White Oak Bayou at Studewood

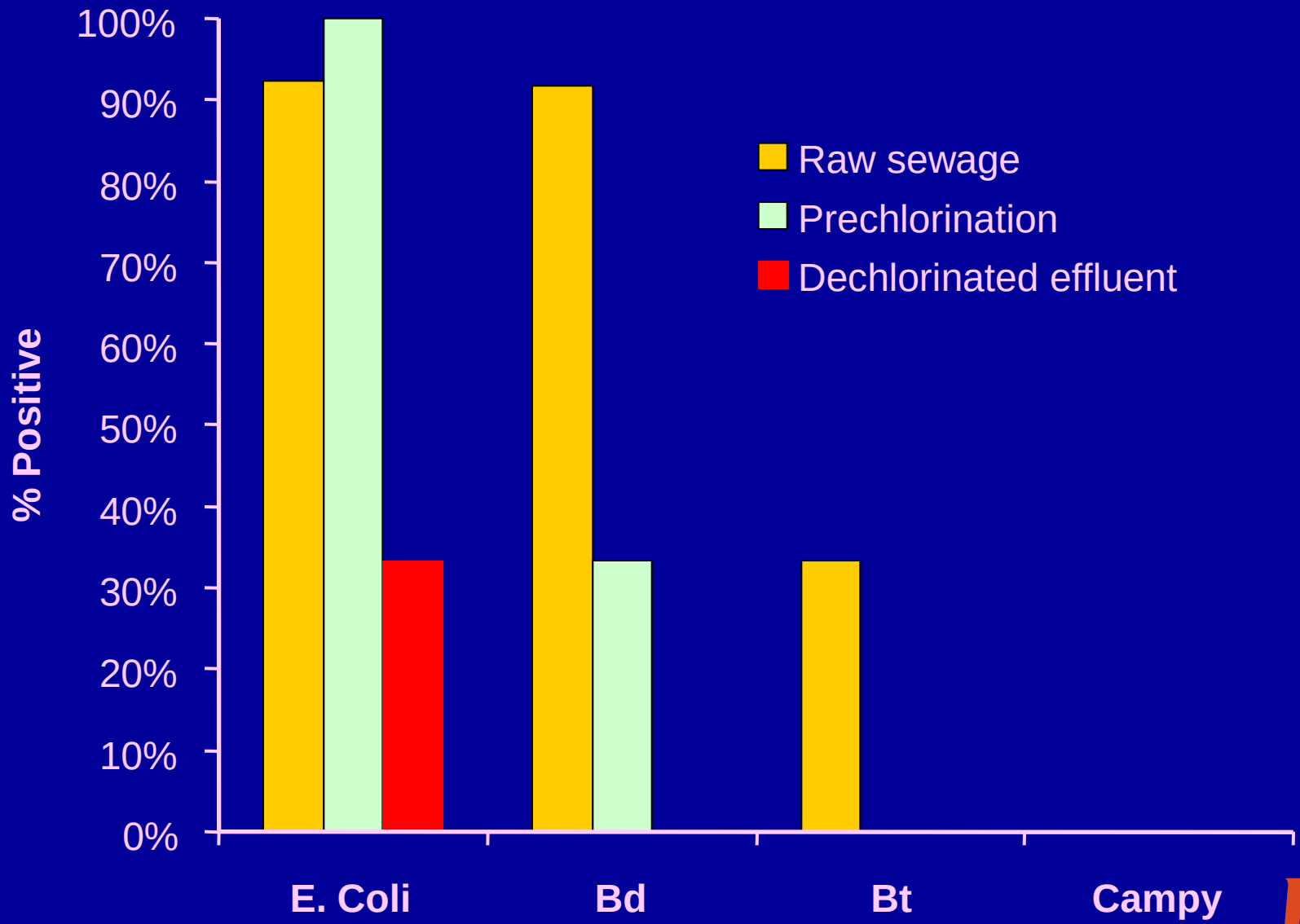
Buffalo Bayou at Main



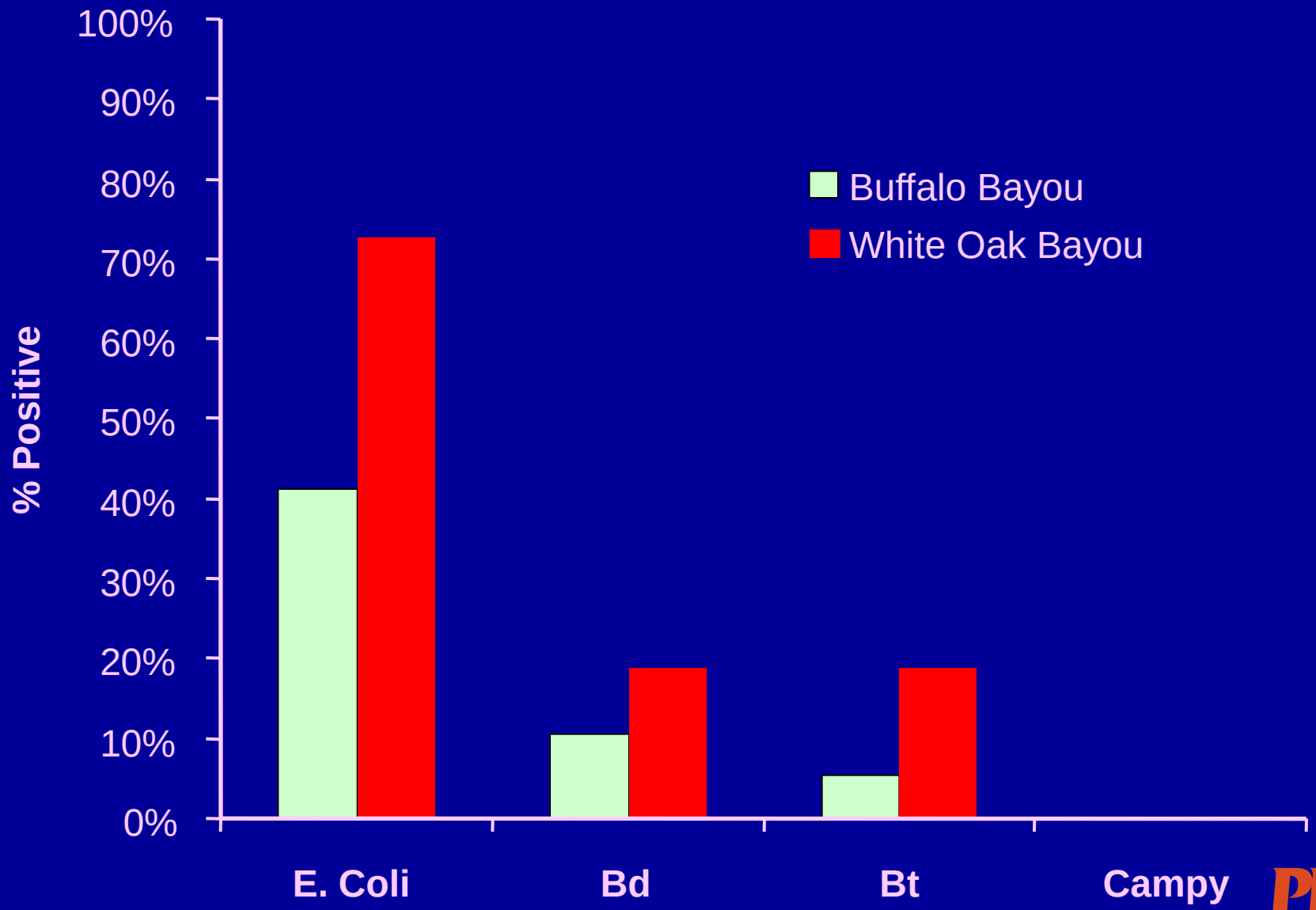
POLYMERASE CHAIN REACTION



WASTEWATER SAMPLES



BAYOU SAMPLES



FINDINGS

- Bacteroides seems to work, as they were found in raw sewage but not in treated WW
- Bd better marker than Bt
- Where EC genetic material was found, Bd was found in 16% of bayou samples
- WO had higher Bd % than BB
- Small tribs with higher EC had up to 45% Bd

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