MCSTOPPP

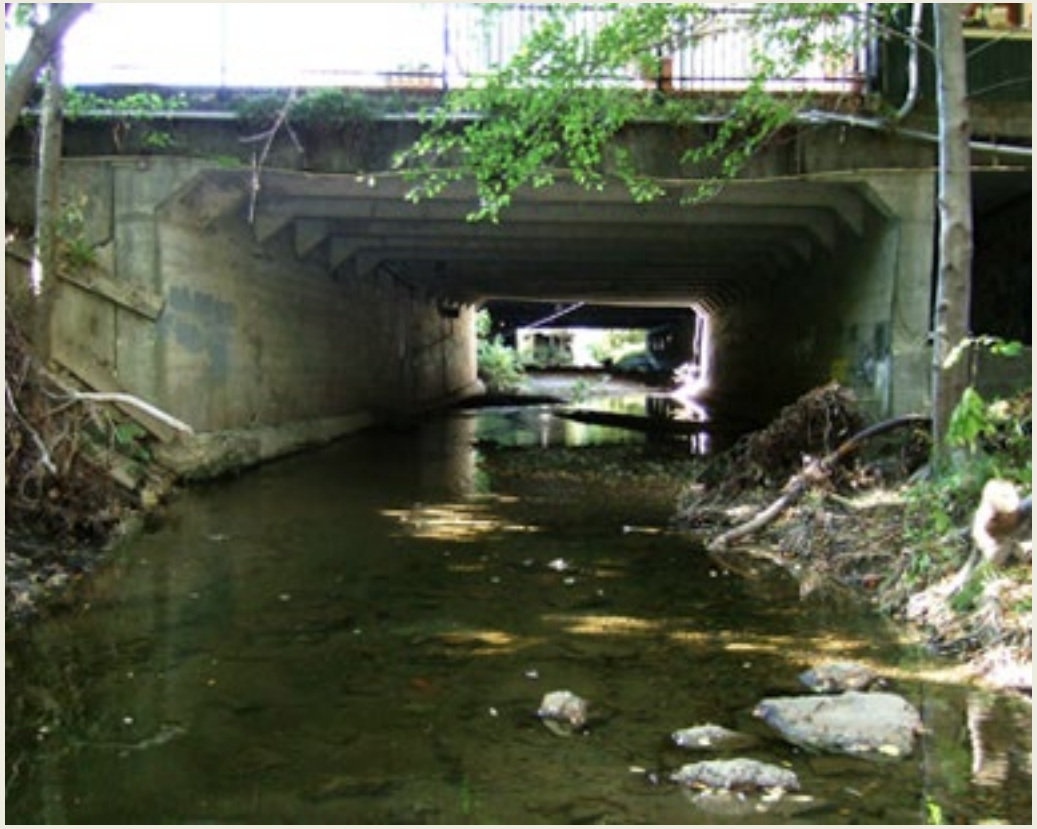
The Marin Countywide Stormwater Pollution Prevention Program (MCSTOPPP)

- Supporting Marin's 12 local municipalities since 1993 to protect clean water and comply with State and Federal NPDES stormwater permit requirements.

- Providing a coordinated, consistent and cost-effective approach to protecting water quality.

Protecting Urban Creeks

- Creeks in urban areas face pressures from every direction:
  - Development of impervious surfaces in the watershed speeds runoff and concentrates pollutants.
  - Confinement of the creek by walls, concrete channels, culverts, road crossings restrict natural processes.
  - Pollution from most human activities
    - Bacteria, pesticides, nutrients, and trash are present in most urban streams regardless of presence of unhoused individuals.



Water Quality Monitoring

- Purpose –
  - Characterize watershed health
  - Attempt to identify unknown pollutants and point sources
    - Many sources are un-identifiable = “non-point sources”
  - **Inform Management Actions!**

- Practice –
  - Monitoring must be designed to answer a specific question.
  - Must be implemented by standardized and repeatable methods
  - Requires strict protocols and procedures to avoid contamination and false positives
  - Must be managed to provide useful data to inform management actions

What is the unknown? And, what could be done to resolve the problem?

If you already understand the solutions to the problem, monitoring data won’t help the creek. Act now to implement effective management actions!

Monitoring for Bacteria in Creeks -

Using Indicator Bacteria

- Not testing for pathogens – measuring proxy species associated with sources
- Fecal coliform bacteria; *E. coli*; *Enterococcus*
  - *Cheaper, but not source specific*
- Bacteriodes or other Microbial Source Tracking (MST) methods can identify likely source species (human, cow, dog, bird, horse, etc).
  - *Specific, but very expensive*
  - *Each species marker costs ~$500+*

Highly variable (spatially and temporally)

- Regular testing – minimum 5-consecutive weeks = calculate geometric mean in wet and dry weather
- Sampling site impacted by all upstream sources
- Heavily influenced by rainfall/runoff
- Finding sources requires implying conclusions from upstream/downstream bracketing and relative comparison of concentrations.

Monitoring for Bacteria in Creeks

Unintended Consequences of Monitoring Data and Programs

- May not provide definitive information that helps target management actions.
- Divert resources that could be used to implement management actions to improve water quality.
- Trigger additional regulatory requirements.
- Create NPDES compliance liabilities.

Management of Bacteria in Local Creeks

Common Sources of Bacteria

- **Livestock** – Cattle, horses, chickens, etc.
- **Pet Waste** – Dogs and cats
- **Sewage**
  - Sanitary sewer laterals and transmission network leaks
  - Septic system leaks or hydrologic connections
  - Uncontrolled human waste
    - Recreational users, unhoused individuals
- **Wildlife**

Associated Management Actions

- Animal Waste Management Best Management Practices (BMPs); maintaining vegetated buffers around waterways
- Public Education & Pet waste bags and cans
- Sewage Management BMPs
  - Sewer lateral & septic system inspection and replacement assistance;
  - Outreach & services (public restrooms &/or port-a-potties)
  - Restrict access to creeks and educate about potential incidental exposure
- Natural background levels – no action

Conclusions

- Bacteria monitoring as a tool.
  - Highly variable data with limited information for management
  - Requires investment of time and resources to generate meaningful data
- NOT Recommended in this situation
  - Management actions to control sources are known
- Recommended Actions to Protect Creeks (& People!)
  - Limit recreational access by all people to creeks and important habitat
    - Protect spawning habitat & threatened species
    - Maintain buffers from creek banks (e.g. vegetation, split-rail fencing)
  - Provide programs, facilities and services to limit contamination