

# Coastal bacteria monitoring

including bays and estuaries

# Different programs, different purpose, endpoints, and management actions

- Beach Water Quality Monitoring (Beach Watch)
- Municipal Separate Storm Sewer System (MS4) Permits
- Publicly Owned Treatment Works (POTW) National Pollution Discharge Elimination System (NPDES) Permits and California Waste Discharge Requirements (WDR)
- Total Maximum Daily Load (TMDL) Programs for Receiving Water Recreational Bacteria Objectives
- 303(d) State water quality assessment for impairment of designated beneficial uses

# From sample jar to regulatory action

- Sampling
- Lab analysis
- Data management
- Calculations
- Reporting
- Management actions
  - Data auditing
  - Inspections
  - Enforcement

# Sampling

- Who? Environmental Health, Public Works, Treatment plant
- What? TC, FC, ENT, E. coli [molecular studies: HF183, MSC, etc.]
- Where? Beaches, bays and estuaries, storm drain outfalls [special studies: e.g. marina pump stations, sanitary sewer overflows]
- When? Dry weather, wet weather [precipitation >0.1 inch, 72 hour window]
- How? Same crews at all locations? Different crews at different times?
- This information should appear in the QAPP
- Why? More than one reason..

# Lab analysis

- Same set of questions: Who, what, where, when etc.
- Additional elements in the QAPP for labs
  - special requirements for permits [e.g. EPA MF methods, Colilert, etc.]
  - documentation of ELAP compliance [training, equipment O&M, etc.]

# Data management

- Identification of data entry staff
- Physical location of central database (servers)
- Who has authority for read/write access to that DB?
- How is that tracked?
- What is the Quality Assurance process for data entry?
- Where does the raw data get sent?
  - SWRCB Beach Watch
  - RWQCB MS4 and POTW sections
  - CEDEN/SMARTS/CIWQS
  - Others?

# Calculations

- Do different Departments do independent calculations?
  - Public Health standards
  - Water Quality Objectives
- Not the same calculations
  - different sub-sets of data
  - different averaging parameters

# Reporting

- Beach Watch program (weekly)
- MS4 Permit (annual)
- NPDES Permits (daily, weekly, monthly – WDR specific)
- 303(d) Water Quality Assessments
  - CWA two-year cycle
  - California RWQCB; sets of three Regions staggered, i.e. six-year cycle
  - Regions have the option to make “off-cycle” recommendations



# Management actions

- Permit enforcement
  - Notice of Violation
  - Cease and Desist Order
  - Cleanup and Abatement Order
  - Mandatory Minimum Penalty
  - Administrative Civil Liability
  - Time Schedule Order
- Voluntarily implemented watershed management plans
  - Not enforceable
  - Reviewed and approved by Regional Boards
  - Not always routinely audited

# Why worry about this now?

- Beach Watch program is ensuring compliance with ELAP by requiring QAPPs from all participating labs
- For data to be used for 303(d) assessments, it must be entered into CEDEN and have an approved QAPP
- Several MS4 permits throughout the State are in the process of revision, or slated to be revised in the near future
- TMDLs and Basin Plans are under revision, or considered for revision in response to the adoption of State Bacterial Water Quality Objectives

# What are the challenges ahead?

- On the part of the Waterboards
  - Harmonize Regions vs State requirements to simplify implementation of regulations
- On the part of the Permittees (Treatment plants, MS4 permittees, and Environmental Health Departments)
  - Integrate monitoring efforts for cost control
  - Clearly identify divergence of sample set selection and data flow relative to enforceable permits and regulations

# What are the solutions?

- Interagency and interdepartmental cooperation and fair workload apportionment for potential restructuring
- Evaluation of QAPP structure and required elements of operating procedure documentation