A Regional Approach to Research/Monitoring in Southern California

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Presentation Outline

- Formation of the southern California Stormwater Monitoring Coalition (SMC)
- Identification of research / monitoring needs
- Project progress over initial 5 years
- Future direction for the next 5 years

SMC Formation

- SMC was formed in February 2001 as a result of:
  - Increased regulatory focus on stormwater
  - Lack of scientific knowledge and tools
  - Common issues facing multiple jurisdictions

- Stormwater regulators, dischargers and SCCWRP formed the SMC as a collaborative program

  Goal - to develop the technical information necessary to better understand stormwater mechanisms and impacts, and then develop the tools that will effectively and efficiently improve stormwater decision making

SMC Participants

- County of Orange
- County of Los Angeles
- County of San Diego
- Ventura County Watershed Protection District
- Riverside County Flood Control and Water Conservation District
- San Bernardino County Flood Control District
- City of Long Beach
- Regional Water Quality Control Board, Los Angeles Region
- Regional Water Quality Control Board, Santa Ana Region
- Regional Water Quality Control Board, San Diego Region
- Southern California Coastal Waters Research Project (SCCWRP)

SMC Cooperative Agreement

- Multi-party agreement underpins SMC
- 5 year initial time frame
- Defined and funded initial project – assessment of research/monitoring needs
- Subsequent projects overseen by a Steering Committee of SMC members

Identification of Research / Monitoring Needs

Approach

- Creation of a white paper outlining the technical issues and management questions of interest
- Conducted a workshop of experts to identify needs and develop an agenda of research/monitoring projects based on the white paper

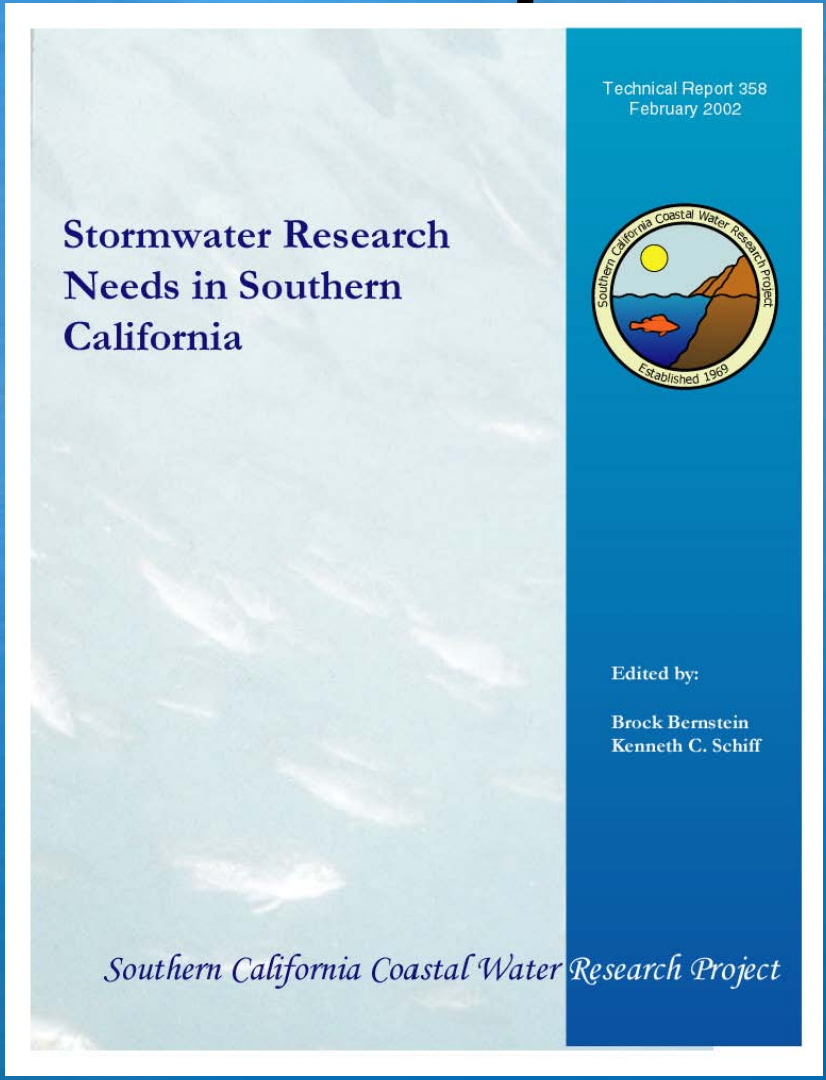
Results

- 50 project ideas were distilled to 15 potential research projects
- Each of the 15 projects fell into 3 distinct categories:
  1. Standardize or maintain comparability among programs in Southern California
     - Mining existing data
     - Sampling and analysis
     - Data management and sharing
     - Testing BMPs

2. Improving fundamental understanding of stormwater mechanisms
   - Creating a conceptual model of processes through an evaluation of
   - Reference conditions
   - Beneficial uses
   - Relative contribution of different sources

3. Developing tools for assessing conditions
   - Bioassessments
   - Toxicity testing
   - Rapid microbial testing
   - Microbial source methods
   - Peak flow impacts

Final Report



Project Progress to Date
The First 5 Years

Project Selection

- SMC meets 4 times/year to discuss projects and progress
- Projects selected by consensus
- Not all SMC members have to participate in all projects
- Outside agencies may participate in projects
- Agreements are executed to fund each project
- A lead agency is identified to manage the project
- Over $1 million of projects funded to date from SMC and other sources

Projects #1 - Standardized Sampling and Analysis

Project conducted in conjunction with SB 72:

- Define monitoring questions of interest
- Assess current monitoring programs
- Creat an optimum design
- Conduct initial lab intercalibration exercise

Project #2 - Microbial Source Tracking

Evaluation of new MST methodologies – human vs. non human and sources (e.g. dog, cow):

- Ribotyping
- Antibiotic resistance
- Pulsed-field gel electrophoresis
- Polymerase chain reaction
- Terminal restriction fragment length polymorphism

No method was perfect – host specific PCR was best for human vs. non human

Projects #3 - Peak Flow Impacts

Goal:

To establish relationship between increased impervious cover and physical condition of streams

- Create stream classification system
- Evaluate resiliency of each stream type
- Develop a conceptual model to predict stream channel response to changes in runoff
  - Basis for numeric modeling
  - Guidance for management decisions

A workshop was held to present the results

Results:

- Developed sites were all unstable
  - 3% - 26% impervious cover
- Control sites were stable, but still exhibited low background rate of change
  - 0.25% - 1.25% impervious cover
  - All stream channels are dynamic
- Apparent threshold of response ~ 3%

Increased Sensitivity of S. California Streams

East Coast Response

West Coast Response

Project #4 – Freshwater Bioassessments

Goal

To build a regionally consistent bioassessment monitoring program:

- Methods standardization
- Calibrating and validating a regional assessment tool
- Designing and implementing an integrated, coordinated regional monitoring program

Training is integral to the project

Project #5 – Laboratory Intercalibration

Goal

To build an ongoing intercalibration program:

- Repeat prior intercalibration for inorganic constituents
- Develop new intercalibration for organic constituents
- Develop model contract bid language to require participation in intercalibration exercises

Future Direction
The Next 5 Years

Future Direction

- SMC is planning to extend the cooperative agreement for 5 more years
- 5 new organizations have agreed to join the SMC:
  - City of Los Angeles
  - CalTrans
  - State Water Resources Control Board
  - EPA Region 9
  - EPA Office of Research and Development

Future Direction

- Projects in development
  - Follow-up on peak flow study
  - Low impact development BMP assessment and guidance manual
  - Toxicity component to the intercalibration program
  - Development of a prototype web-based watershed information management system – CalSWIM
  - Others

Questions

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