

TMDLS AND MUNICIPAL STORMWATER PROGRAMS – THE NEXT BIG CHALLENGE

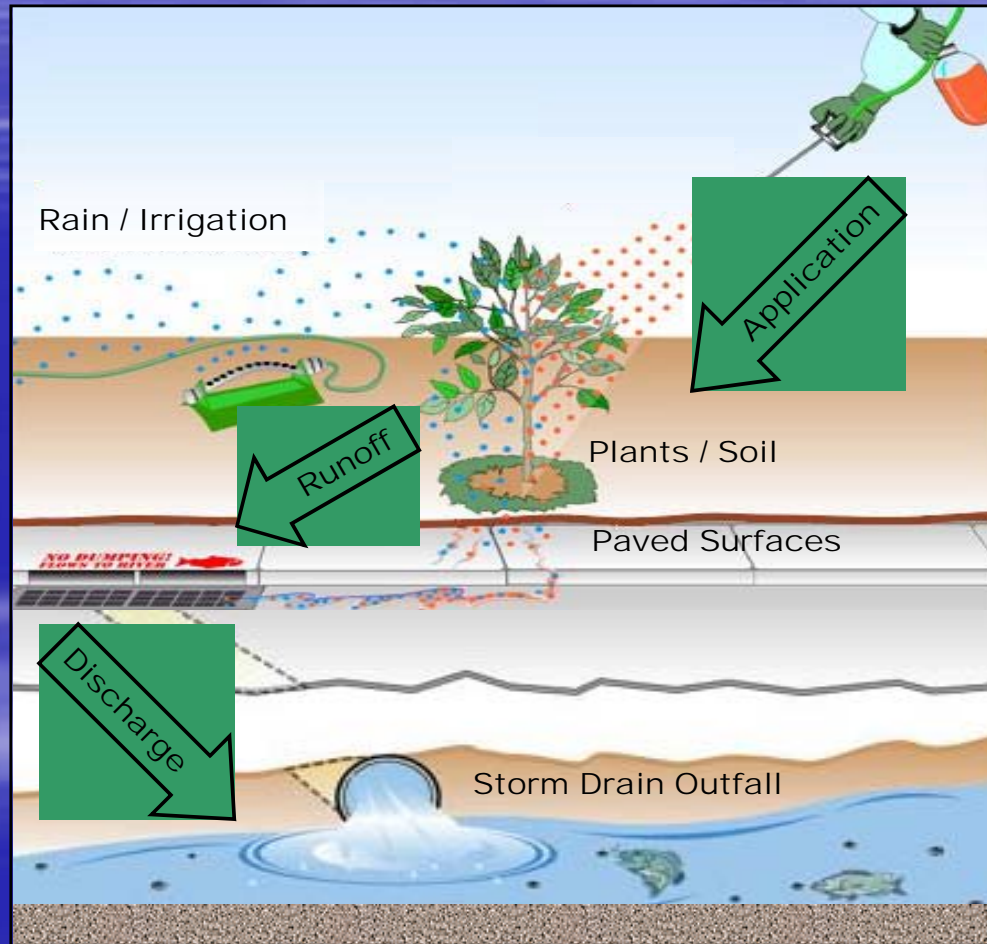
Armand Ruby

Sept. 13, 2004

Regulatory Challenge

- Municipal storm water programs are responsible for pesticide discharges through their storm water permits.
- Authority to regulate pesticides resides exclusively with:
 - U.S. Environmental Protection Agency
 - California Environmental Protection Agency
- Municipalities can minimize their own pesticide use and conduct education and outreach.

Pesticide Pathways



Aquatic Food Pyramid



Beneficial Uses

- Provide warm and cold freshwater habitat
- Can support fish spawning and migration

TMDL for Diazinon and Pesticide-Related Toxicity in Bay Area Urban Creeks

Bill Johnson

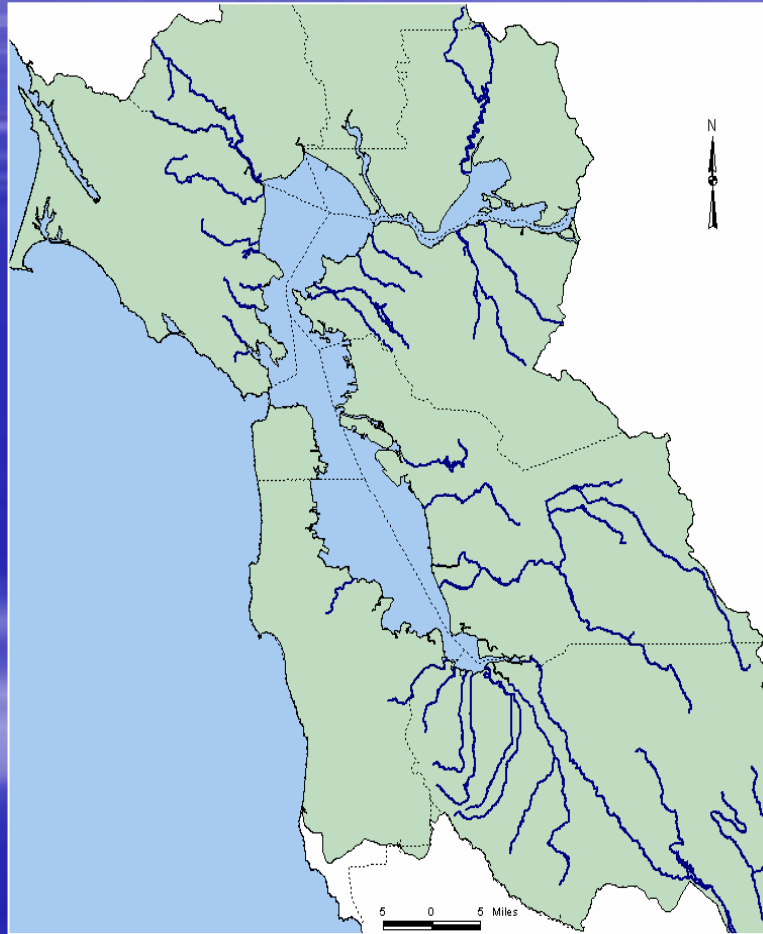
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SF Bay Area Urban Creeks



SF Bay Basin Plan – Narrative Objective

- “All waters shall be maintained free of toxic substances in concentrations that are [toxic to] aquatic organisms.”

SF Bay Area Urban Creeks TMDL Targets

- No Toxicity
- California Department of Fish and Game Water Quality Criteria:
 - Acute Effects (1 hour): 80 parts per trillion
 - Chronic Effects (4 days): 50 parts per trillion

MS4 TMDL Responsibilities

- Promote proactive regulation:
 - Monitor U.S. EPA activities and encourage U.S. EPA to coordinate regulations
 - Support DPR and Regional Board efforts to coordinate regulations
 - Assemble information necessary for DPR to act

MS4 TMDL Responsibilities

- Reduce municipal pesticide use:
 - Adopt policies, procedures, or ordinances that minimize conventional pesticide use in municipal operations and on municipal property.
 - Track pesticide use by municipalities and their contractors.
 - Require municipal employees and contractors to practice IPM

MS4 TMDL Responsibilities

- Reach out and educate others:
 - Target outreach to educate employees, businesses, pest control operators, gardeners, and public.
 - Encourage appropriate pesticide waste disposal.
 - Require pest-resistant landscaping at new development and re-development sites, minimize impervious surfaces at these sites, and encourage landscape designs that delay runoff entering nearby creeks.

MS4 TMDL Responsibilities

- Monitor creeks:
 - Monitor pesticides and toxicity in urban creeks (both water and sediment)
 - Share monitoring and science data with U.S. EPA
 - Identify and report pesticide violations

Implementation Process

- Regional Board will monitor implementation
- Storm water permittees will characterize receiving water quality
- Regional Board will use data to track progress in meeting numeric targets
- If strategy is not working, Regional Board will revise it

Monitoring Questions

- Are actions making a positive difference?
- Are diazinon concentrations decreasing to levels below the numeric targets?
- Do standard toxicity tests indicate that toxicity in urban creeks is still a problem?
- If so, what are the causes of the toxicity?
- Do pesticides other than diazinon pose any water quality concerns?

Follow-up

- Exceedances of toxicity target will trigger Toxicity Identification Evaluations
- Pesticide-related toxicity will be subject to TMDL actions
- Toxicity related to stressors other than pesticides would be beyond the scope of this TMDL
- U.S. EPA's actions should meet diazinon concentration targets

CA Fish and Game OP Pesticide Criteria (Finding 64 f.)

- Not adopted as water quality objectives
- Not found in CTR or Basin Plan
- Pre-empt TMDL development (target)

***Standard-setting must follow legal process
(through Porter-Cologne, CEQA)***





Near Colusa



Ball's Ferry near Cottonwood



Sacramento River at Sacramento

OP Pesticides in the Sacramento and American Rivers

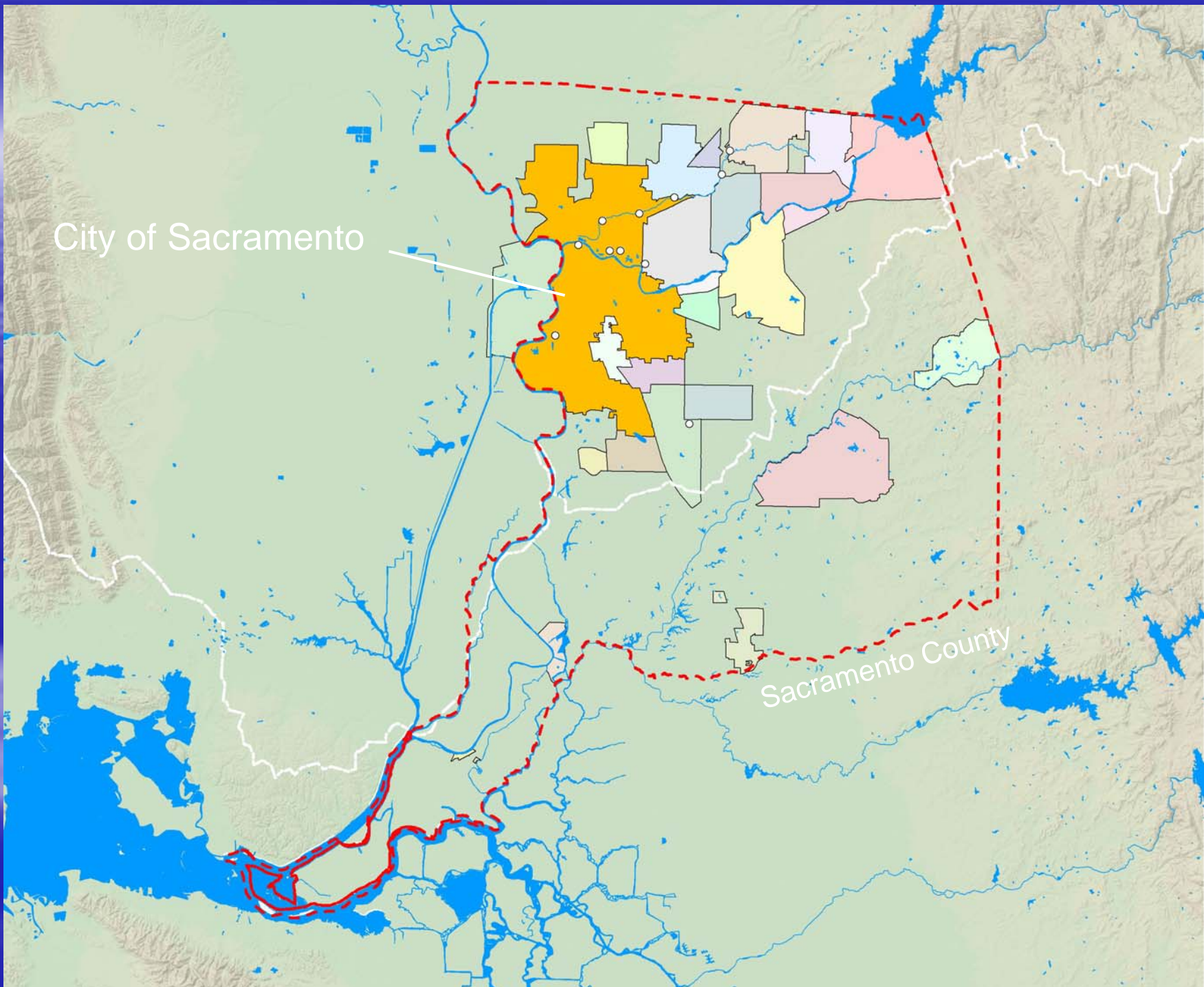
- Chlorpyrifos essentially never detected in either river
- Diazinon infrequently detected in American and Sacramento rivers
- Diazinon concentrations highest during agricultural dormant spray season (even distinguished from wet season)
- Only American R. indicates diazinon increasing as river flows through urban area



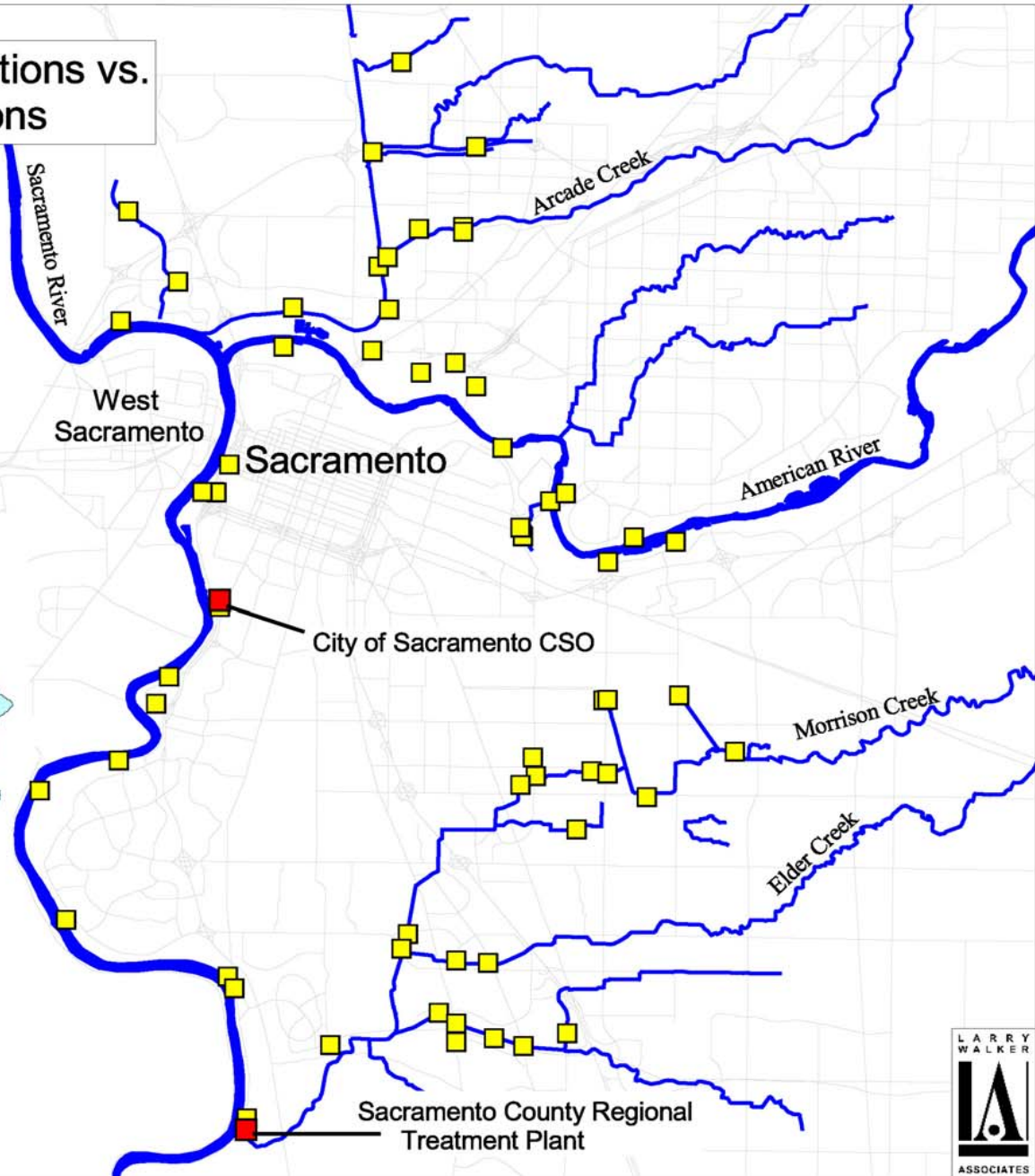
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City of Sacramento

Sacramento County



Stormwater Discharge Locations vs. POTW Discharge Locations



- Stormwater Discharge Location
- POTW Discharge Location

1 0 1 2 3 Miles



Sacramento CalFed OP Study

Diazinon and chlorpyrifos concentrations in Sacramento urban runoff and creeks persist at elevated levels most of the year

- Levels toxic to *Ceriodaphnia* and other sensitive arthropods
- Levels typically exceed water quality limits
- When considered in combination, these two pesticides would cause toxicity to sensitive arthropods essentially all the time.

Sacramento SW Program Actively Addresses The Big Issues

Target Pollutant identification considers:

- CWA Section 303(d) listings
- Toxicity study results
- Exceedances of water quality objectives
- Observed beneficial use impairments
- Other factors

Target Pollutant Reduction – A Key “MEP” Strategy

- Process initiated in 1995
 - Gather data
 - Id and prioritize target pollutants
 - Id and prioritize sources of those pollutants
 - Id and prioritize actions to control the sources and reduce the pollutants
 - Annual re-evaluations of target pollutant list
- O-P Pesticides (diazinon & chlorpyrifos), Copper, Lead, Mercury, Coliform/Pathogens targeted to date

Sacramento Urban Creeks TMDL

- No Toxicity in Urban Creeks
- California Department of Fish and Game Water Quality Criteria:
 - Acute Effects (1 hour): 80 parts per trillion
 - Chronic Effects (4 days): 50 parts per trillion

THE BOTTOM LINE

Replacement of MEP/iterative process with effective end-of-pipe limits