

# RIVERSIDE COUNTY

W A T E R S H E D P R O T E C T I O N



## SANTA ANA REGION

# PROPOSED POST-FIRE MONITORING FOR HOLY FIRE AREA

**2018 – 2019 Wet Season**

Presentation by: Rebekah Guill, Monitoring Programs Section Manager  
RCFC&WCD Watershed Protection

LE/CL TMDL Task Force  
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# Impacts of Wildfires

- Increases pollutant loading from burned area discharges  
*nutrients, metals, particulates, toxic organic, elevated pH*
- Increases pollutant loading from fire retardant application  
(e.g., ammonium salts)  
*ammonium polyphosphate, diammonium phosphate, diammonium sulfate, monoammonium phosphate*
- Increased runoff rates and volumes
- Erosion and Sedimentation
- Aerial deposition

**Residual impact – Years from recovery from initial burn**



## Project Goal

To quantify contaminant loading from burned areas compared to unburned (natural urban) areas.

- Will provide the SAR Permittees with information regarding the effects of fires on the water quality in the region. A summary of findings will be included in the FY19/20 SAR Permittee Annual Report
- District will coordinate monitoring in consideration of the post-fire monitoring efforts of the LE/CL TMDL Task Force.

## Study Focus

- In general, follow the guidance provided in the Southern California Stormwater Monitoring Coalition's Technical Report for the Development of a Post-Fire Monitoring Program on the "Effect's of Post-Fire Runoff on Surface Water Quality..." ([SCCWRP Technical Report 598, August 2009](#))
- Wet weather only
- How does post-fire runoff affect contaminant flux?

# Proposed Monitoring Plan

- Monitoring near perimeter of fire affected areas, making observations of connectivity of flows and discharges into most proximate receiving water.\*  
*\*Selection and monitoring of comparator (unaffected) station will be conducted by others under reference monitoring conducted by Wood.*
- Schedule
  - 1<sup>st</sup> Storm and 3<sup>rd</sup> Storm of Season
  - Events forecasted to be 0.3” in 6-hrs to 0.5” in 24-hours\*\*  
*\*\*Consistent with District’s county-wide monitoring program.  
Conditions may require further modification.*
- Sample Methods
  - Composite sampling consistent with TMDL monitoring program
  - Will be adapted to address discharge matrix if needed (sediment/debris)
- Analyte List
  - SMC recommended list w/ parameters from TMDL monitoring

Parameters	Lake Elsinore and Canyon Lake Nutrient TMDL	SCCWRP Post-Fire Water Quality Monitoring Plan Suggested Constituents <sup>3</sup>	Proposed Holy Fire Post-Fire Water Quality Monitoring Constituents
<b>General</b>			
Flow	x	Core	x
Rainfall	x	Core	x
Temperature	x	Core	x
pH	x	Core	x
Specific conductance	x	Core	x
Turbidity	x	Not Listed	x
Dissolved Oxygen	x	Core	x
Biochemical Oxygen Demand	x	Not Listed	x
Chemical Oxygen Demand	x	Not Listed	x
Total Dissolved Solids	x	Optional	x
Total Hardness	x	Core	x
Total Suspended Solids	x	Core	x
Dissolved Organic Matter		Core	x
Total Organic Carbon		Core	x
Alkalinity		Optional	
Particle Size Distribution		Optional	
<b>Nutrients</b>			
Ammonia-Nitrogen	x	Core	x
Kjeldahl Nitrogen	x	Core	x
Nitrate as N	x	Core	x
Nitrite as N	x	Core	x
Organic Nitrogen	x	Not Listed	x
Total Nitrogen (calculation)	x	Not Listed	x
Total Phosphorus	x	Core	x
Ortho-Phosphate	x	Core	x
Sulfate		Core	x
<b>Metals (Total and Dissolved)</b>			
Aluminum		Core	x
Iron		Core	x
Cadmium		Core	x
Copper		Core	x
Lead		Core	x
Manganese		Core	x
Nickel		Core	x
Zinc		Core	x
Mercury		Optional	
Selenium		Optional	
Arsenic		Optional	
<b>Organics</b>			
PAHs		Optional	
Dioxins		Optional	
<b>Toxicity</b>			
Water Column and Sediment		Optional	

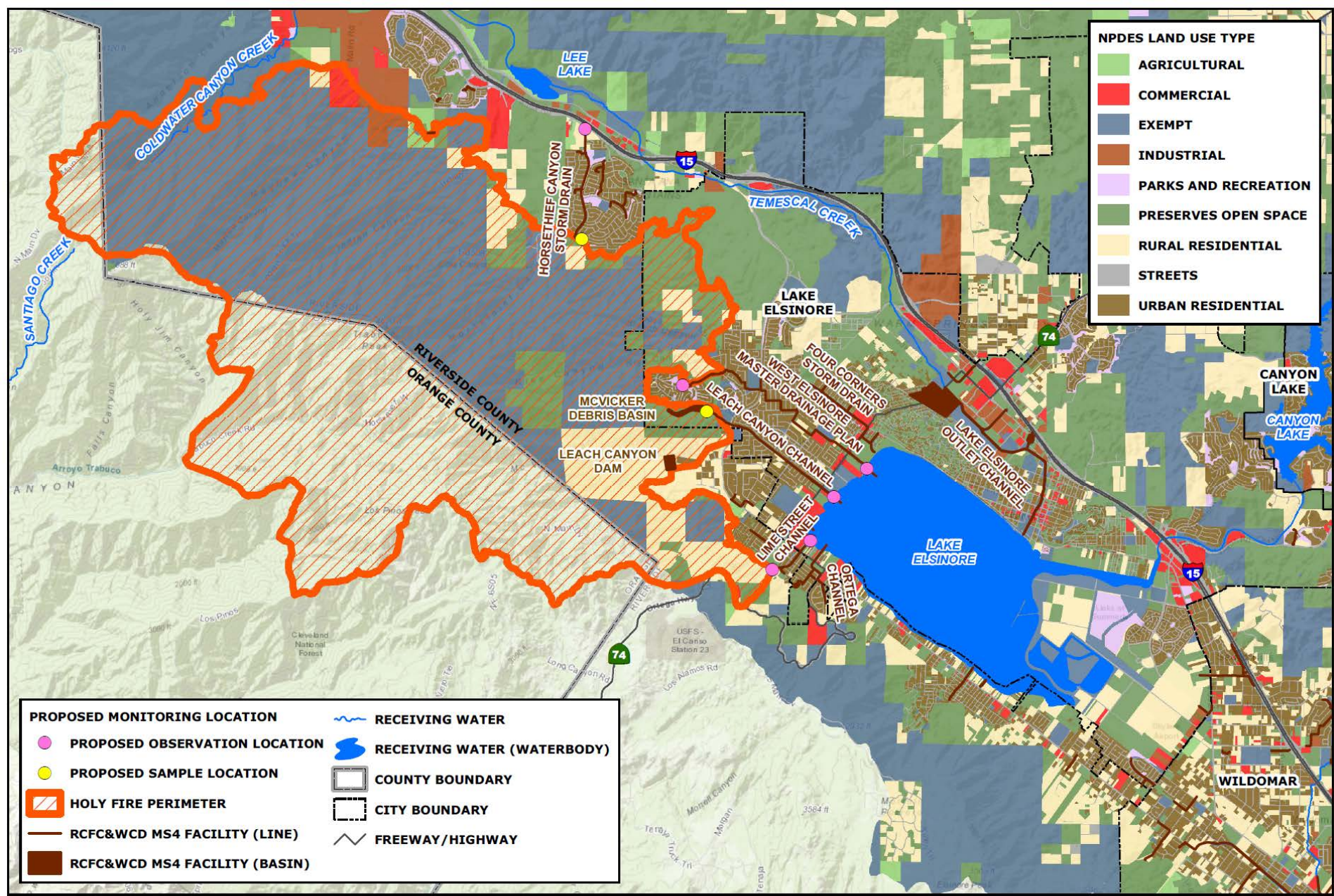
# Proposed Monitoring Plan

- Stations
  - Two upstream sampling locations with downstream observations  
*(Locations tributary to open space/ forestry landuses)*
    - Leach Canyon Channel – Discharges to Lake Elsinore
    - Horsethief Canyon Storm Drain – Discharges to Temescal Creek
  - Two additional locations for upstream and down stream observations
    - West Elsinore Master Drainage
    - Lime Street Channel



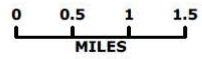






# HOLY FIRE PERIMETER AND DRAINAGE

## PROPOSED POSTFIRE MONITORING LOCATIONS WITH LAND USE FY18-19



## Coordination

Post-storm, Alta Environmental will communicate with Wood on behalf of the TMDL monitoring group to inform if contaminated flows were observed directly discharging into the Lake in order to help determine if post-storm event sampling is needed in Lake Elsinore.

- Connectivity of Discharges from burn area
- Visual Observations (discoloration, sludge, debris, etc.)
- Elevated field measured analytes (pH, turbidity, poor dissolved oxygen, etc.)

## Proposed Monitoring Deliverables

- Alta will prepare a post-fire tech memo with data, observations, and general findings after each monitored event (2 events). Each will consist of a Draft for review and comment by the District before finalization.
- Comparator station data will be included for reference from monitoring conducted by the Task Force.
- Final tech memos will be provided to the Task Force for use in their Reference Study covering effects of fires.



# QUESTIONS?

## **Rebekah Guill**

Monitoring Programs Section Manager  
RCFC&WCD Watershed Protection Division  
(951) 955-2901  
[rguill@rivco.org](mailto:rguill@rivco.org)

## **Richard Boon**

Water Quality Compliance Section Manager  
RCFC&WCD Watershed Protection Division  
(951) 955-1330  
[rboon@rivco.org](mailto:rboon@rivco.org)

