

Region 9, Fiscal Year 11/12 (DRAFT)

## Regional Research Priorities Summary

USING SCIENCE TO MAKE A DIFFERENCE IN U.S. EPA REGION 9, THE PACIFIC SOUTHWEST REGION

*The Region 9 Science Council (RSC) has developed the following research priorities to help determine the major areas where support is needed from the Office of Research and Development for fiscal years 2011/2012. The RSC worked with management and staff from each Division within the Region to determine their top Science Priorities. Within these priorities there are two overarching themes: (1) the need to incorporate the unique characteristics and environments of the arid southwestern portions of the country into research goals, projects, and outreach and (2) the need to consider climate change issues and impacts when addressing science priorities.*

*These priorities represent the most pressing issues but are not inclusive of all research needs in the region. The issues covered in these priorities are aligned with the Agency's strategic goals as described in the "20011-2015 EPA Strategic Plan" (<http://www.epa.gov/ocfo/plan/plan.htm>). More details for each of the priorities can be found in the individual divisional fact sheets. This Document is currently draft and are for internal Region 9 use and discussion only. For more information contact Matt Small, Regional Science Liaison (415) 972-3366.*

### Air Division

Region 9 experiences some of the most severe air quality problems in the nation, which are compounded by our unique geography and climate, rapid population growth, and distinct mixes of agricultural, rural, and urban sources.



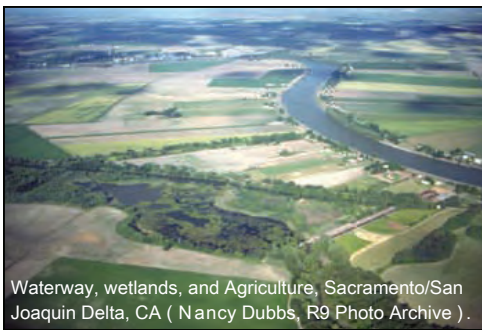
The science priorities and activities below are a reflection of these unique and significant air pollution challenges.

- Improving air quality and public health in the San Joaquin Valley and South Coast Air Basin through research on control technologies and control strategies
- Addressing infrastructure and public health challenges associated with climate change adaptation in the Western U.S. and Pacific Islands through research on climate change and energy.

### Water Division

The water quality challenges associated with both the arid southwest ecosystems and pacific island ecosystems are especially challenging and unique relative to the rest of the nation. Much of the Agency-level science developed for water quality has a bias toward the environments of the eastern U.S. These science priorities and activities address issues that reflect the unique character of the environments in Region 9 and which address some significant public health concerns.

- Remote wetlands delineation
- Numeric nutrient criteria development and stressor identification
- Demonstrating water quality impacts of low impact development/green infrastructure
- Assessing the cause of the decline of Delta fisheries and Central valley salmonids



- Assessing sources and loads of selenium discharges to the San Joaquin River
- Coral reef ecosystem assessment tools
- Wildlife criteria development

## Waste Management Division

Region 9 has been on the forefront of identifying several emerging environmental contaminants over the past several years and has been an active voice for pollution prevention. Identified below are science concerns associated with better identifying emerging pollutant concerns and development of safe, non-toxic alternatives to hazardous chemicals.

- Cross-Media Impacts of Organic Materials Recycling and Biogas Use
- Materials Management: Reducing the Lifecycle Impacts from Goods through Preferred Strategies
- Green Building: Health Effects and Lifecycle Environmental Impacts from Buildings

## Superfund Division

Hazardous waste cleanups in Region 9 have often taken on environmental problems over large geographic regions with unique technical challenges. The science needs and priorities identified below represent important science issues associated with several of our largest and most significant cleanup challenges as well as recurring technical issues impacting both large and small sites. These issues involve large scale concerns in Region 9, such as naturally occurring asbestos widespread perchlorate contamination, as well as recurring challenges associated with our many

groundwater remediation sites and an increasing concern associated with vapor intrusion of contaminants into buildings.

Indoor air sampling (Kathy Baylor, Alana Lee, R9 RARE Project).

- Contaminated Vapor Intrusion into Buildings: Improving site investigation methods
- Asbestos Human Health Risk Assessment
- Green Remediation
- Groundwater Remediation
- Perchlorate: Human Exposure Routes
- Nanoparticles

## Communities and Ecosystems Division

The populations of Region 9 are among the most diverse in the nation and include large segments of population that are uniquely impacted by environmental pollution or which are underserved by basic environmental infrastructure. Our ecosystems are also uniquely diverse and varied from the rest of the nations. The science priorities and activities below reflect these unique characteristics and challenges facing Region 9



Tribal Dancers (U.S. EPA Photo Archive.)

- Life Cycle Analysis of Environmental Effects of Agriculture, especially Dairy System
- Sustainability Indicators for Policy-making
- Better Methods to Identify and Evaluate the Most Vulnerable Communities and the Cumulative Impacts and/or Risks These Communities May Face
- Influx of Large-Scale Solar Energy Projects in the Desert Southwest
- Development of Tribal Environmental Indicators in the U.S./Mexico Border Region
- Impact of climate change on tribal lands, traditions, and ways of living
- Targeting Lead-based Paint Inspections Under TSCA
- Integrated approach to understanding fate and effects of pesticides in water and sediment



Pesticide Application (U.S. EPA Archive.)

*More detailed information on Region 9 Research Priorities, is available in divisional fact sheets*