National Center For Environmental Research (NCER)

Region 9 Science to Achieve Results (STAR) Grants

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

Grants and Cooperative Agreements

The National Center for Environmental Research's (NCER) Science to Achieve Results (STAR) program funds research grants and graduate fellowships in numerous environmental science and engineering disciplines through a competitive solicitation process and independent peer review. The program engages the nation's best scientists and engineers in research that complements EPA's own intramural research program and those of our partners in other federal agencies. NCER also establishes research centers in areas of national concern. Currently, these centers focus on children's health, hazardous substances, particulates, and estuarine/coastal monitoring.

STAR research is funded through Requests for Applications (RFAs) that are derived from the ORD Strategic Plan and from research plans for specific topics developed by ORD. RFAs concentrate on areas of special significance to the EPA mission. At present, STAR is focusing on the health effects of particulate matter, drinking water, water quality, global change, ecosystem assessment and restoration, human health risk assessment, endocrine disrupting chemicals, pollution prevention and new technologies, children's health, and socio-economic research.

STAR Program in Region 9

Since 1995 NCER has granted over $294 million for 635 projects at numerous universities in EPA Region 9. The funded research has focused on a wide range of environmental issues. The following are examples of key STAR grants in Region 9.

UC Davis Center for Children's Environmental Health (CCEH)

Director: Isaac N. Pessah, September 1, 2007 through August 31, 2011, Funding: $7,500,000

Expected Results: The goals of the CCEH in the next five years are to: (1) better understand the mechanisms by which environmental, immunologic, and molecular factors interact to influence the risk and severity of autism; (2) identify early immunologic, environmental, and genomic markers of susceptibility to autism; (3) develop mouse models of immunologic susceptibility to environmental triggers and define the impact of these triggers on the development of complex behaviors, key brain structures and neurotransmitter receptors relevant to autism; (4) translate our research findings into diagnostic tools that can be used in clinical practice to predict early autism risk; and (5) supply the community with accurate and timely information about autism risk factors.

San Joaquin Valley Aerosol Health Effects Research Center (SAHERC)

Director: Anthony S. Wexler, October 1, 2005 through September 30, 2010, Funding: $7,999,767

Expected Results: Epidemiological studies show a correlation between elevated particulate matter concentrations and increased rates of morbidity and mortality, but these studies do not suggest the mechanisms or the particle properties that cause this correlation. The Center's scientists will investigate the properties of the particles that are responsible for these health effects, the metabolism that underlies these effects, and the consequences of chronic exposures, especially during childhood, that make individuals more susceptible to adverse effects.

Smog over California City, Dale Mead, Office of Planning and Public Affairs

STAR Fellowships

EPA's STAR graduate fellowship program supports master's and doctoral candidates in environmental studies. Each year, students in the United States compete for STAR fellowships through a rigorous review process. Students can pursue degrees in traditionally recognized environmental disciplines as well as other fields such as social anthropology, urban and regional planning, and decision sciences. Since the program began in 1995, EPA has awarded approximately 1,500 STAR fellowships to students in every state and most territories. Fellowships have helped educate new academic researchers, government scientists, science teachers, and, environmental engineers.

STAR fellowships are intended to help defray the ever-increasing costs associated with studies leading to advanced degrees in environmental sciences. The actual amount awarded per year will vary depending on the amount of tuition and fees and the number of months the stipend is needed.

Benefits of an EPA STAR Fellowship include: Up to $37,000 per year of support, including $12,000 per year for tuition and fees; $20,000 per year in a monthly stipend; and an annual expense allowance of $5,000. Master's level students can receive support for a maximum of two years. Doctoral students can be supported for a maximum of three years with funding available, under certain circumstances, over a period of four years. http://epa.gov/ncer/fellow/

STAR Fellowships in Region 9

The following are some examples of STAR fellowships that have recently been granted to students attending universities in Region 9.

Sustainable Transportation in the Development Assessment Process: Exploring Methods to Estimate Pedestrian, Bicycle, and Public Transit Mode Shares

Robert J. Schneider (2008) University of California - Berkeley,
Expected Results: This project will help create better methods of estimating pedestrian, bicycle, and public transportation mode shares for proposed land developments. The findings can also provide the basis for community policies that seek to improve air quality, reduce greenhouse gas emissions, and decrease reliance on petroleum by supporting sustainable transportation choices.

Effluent-Dependent Waterways in the Southwest: Advancing Water Policy through Ecological Analysis

Margaret Susan White (2007) Arizona State University
Expected Results: Existing water policy frameworks are complex and fragmented; surface water, groundwater, and effluent are managed separately and have differing levels of management. Scientific studies offer a means for improving understanding of links among stream hydrology, water quality, and riparian plant communities, thereby informing policy and management. This work utilizes scientific analysis as a framework for informing regional planning and ecosystem management and contributes the first characterization of the spatial patterns and temporal changes of effluent-dependent waterways in Arizona. This research also presents the use of hydrologic studies on ecosystem structure and function to inform planning and policy models for effluent discharge points and reuse.

Structure and Function of Ammonia-Oxidizing Archaea and Bacteria Across Physical-Chemical Gradients in the San Francisco Bay Estuary

Annika C. Mosier (2007) Stanford University
Expected Results: There is increasing concern about eutrophication of coastal ecosystems and yet its specific effects on microorganisms are poorly understood, despite their fundamental role in trophic interactions and geochemical cycling. The effects of eutrophication on estuarine ammonia oxidizers are inextricably linked to the health of the entire ecosystem. This study will provide critical information illuminating the molecular microbial ecology of ammonia oxidizers in San Francisco Bay, and the effects environmental factors have on their metabolism. This data should ultimately lead to informed management and policy decisions regarding nutrient loads to the estuary. These findings should be broadly applicable to estuaries around the world.