



Environmental Health Activities in South Carolina



NCEH in Partnership with South Carolina

The National Center for Environmental Health (NCEH) is part of the Centers for Disease Control and Prevention (CDC). NCEH's work focuses on three program areas: identifying environmental hazards, measuring exposure to environmental chemicals, and preventing health effects that result from environmental hazards. NCEH has approximately 450 employees and a budget for 2004 of approximately \$189 million; its mission is to promote health and quality of life by preventing or controlling diseases and deaths that result from interactions between people and their environment.

NCEH and partners in **South Carolina** collaborate on a variety of environmental health projects throughout the state. In **fiscal years 2000–2004**, NCEH awarded more than **\$3.9 million** in direct funds and services to South Carolina for various projects. These projects include activities related to asthma surveillance and intervention, biomonitoring, and childhood lead poisoning prevention. In addition, South Carolina benefits from national-level prevention and response activities conducted by NCEH or NCEH-funded partners.

Identifying Environmental Hazards

NCEH identifies, investigates, and tracks environmental hazards and their effects on people's health. Following are examples of such activities that NCEH conducted or supported in **South Carolina**.

- **Asthma Surveillance and Interventions in Hospital Emergency Departments Program**—NCEH funded the **University of South Carolina** to forge partnerships among universities, hospital emergency departments, and state and local health departments to improve asthma care. Final analyses are being completed. Funding began in fiscal year 2000 and ended in fiscal year 2002.
- **Multistate Surveillance System for Possible Estuary-Associated Syndrome (PEAS) in Six**

East Coast States—

NCEH is funding the **South Carolina Sea Grant Consortium** to conduct research activities into the nature and possible health effects of

Pfiesteria piscicida

(*P. piscicida*), a microscopic alga that lives in estuaries and has been found near large groups of dead fish. People exposed to water with high concentrations of *P. piscicida* have reported adverse health effects such as headache, confusion, skin rash, and eye irritation.

The consortium will continue its ongoing human health surveillance, expand the program's ecologic research components to define the causes of harmful algal blooms and better identify potential preventive measures, and enhance its outreach and education efforts. Funding began in fiscal year 2000 and continues through fiscal year 2004.

Measuring Exposure to Environmental Chemicals

NCEH measures environmental chemicals in people to determine how to protect people and improve their health. Following are examples of such activities that NCEH conducted or supported in **South Carolina**.

Funding

- **Antiterrorism Funding to Increase State Chemical Laboratory Capacity**—In fiscal year 2003, CDC provided more than \$1 million to **South Carolina** to help expand chemical laboratory capacity to prepare for and respond to chemical-terrorism incidents and other chemical emergencies. This program expansion will allow chemical-terrorism response laboratories in the state to fully participate in the Laboratory Response Network.

In addition, NCEH has begun to fund laboratory development and the purchase of

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state-of-the-art equipment in South Carolina's public health laboratories to develop a network of chemical laboratories and transfer technology to measure chemical agents.

- **Biomonitoring Grants**—In 2001 and 2002, NCEH awarded planning grants to a biomonitoring consortium in which Georgia and **South Carolina** were members (South Carolina was the lead) to develop an implementation plan for a state biomonitoring program. In this way, the consortium could make decisions about which environmental chemicals within its borders were of health concern. The consortium could then make plans for measuring levels of those chemicals in South Carolina's population.

Studies

- **Farm Family Exposure Study**—The Farm Family Exposure Study is a comprehensive biomonitoring study of 95 farm families (50 in **South Carolina** and 45 in Minnesota) conducted by the University of Minnesota in conjunction with an agroindustry consortium and with additional support from the American Chemistry Council. The goal of this industry-funded study was to measure paraoccupational exposures to three pesticides—chlorpyrifos, 2,4-dichlorophenoxyacetic acid, and glyphosate. Paraoccupational exposures are those resulting from parental occupational exposures; these are sometimes called “take-home” exposures.

The glyphosate data were of particular interest, because the glyphosate levels found in participants were very low, although glyphosate was applied in large amounts, by volume, to the farms. The NCEH laboratory was asked to independently confirm the study measurements and ensure the data collected were of high quality. These data are being generated and will be compared as a quality-assurance check with those already generated in external laboratories.

- **Human Exposure to Uranium in Groundwater in South Carolina**—In early 2001, testing conducted by the **South Carolina Department of Health and Environmental Control (SCDHEC)** found elevated levels of uranium in water from some private wells in **Simpsonville** and **Fountain Inn**. The uranium was naturally occurring and not a result of industrial pollution.

In response to the elevated uranium levels, the Agency for Toxic Substances and Disease Registry (ATSDR) conducted three exposure investigations in the Simpsonville/Fountain Inn community from April 2001 to September 2002. These investigations assessed human exposure to uranium from drinking water. Investigators also assessed changes in body burdens of uranium and possible kidney effects. At the request of ATSDR and SCDHEC, the NCEH laboratory analyzed all urine samples collected for the investigations. As a result of these investigations, municipal water lines have been installed in this area. Many area residents no longer use well water.

Services

- **Newborn Screening Quality Assurance Program**—NCEH provides proficiency-testing services and dried-blood-spot, quality-control materials to monitor and help assure quality screening program operations for newborns in **South Carolina**. The importance of accurate screening tests for genetic metabolic diseases cannot be overestimated. Testing of blood spots collected from newborns is mandated by law in almost every state to promote early intervention that can prevent mental retardation, severe illness, and premature death.
- **Blood Lead Laboratory Reference System (BLLRS)**—Three laboratories in **South Carolina** participate in NCEH's standardization program to improve the overall quality of laboratory measurements of blood lead levels. This program helps laboratories nationwide evaluate their performance on these critical laboratory tests. NCEH provides BLLRS materials to the laboratories four times a year without charge.
- **Lipid Standardization Program (LSP)**—NCEH provides a lipid research laboratory in **South Carolina** with accuracy-based standardization support for analytic measurement. This laboratory is involved in one or more ongoing lipid metabolism longitudinal studies or clinical trials that investigate risk factors and complications associated with cardiovascular disease. The LSP, supported by NCEH's Lipid Reference Laboratory, provides quarterly analytic performance challenges and statistical assessment reports that allow program participants to monitor performance

over time and thus ensure the accuracy and comparability of study results and findings.

- **Helping State Public Health Laboratories Respond to Chemical Terrorism**—NCEH is working with **South Carolina**'s public health laboratory to prepare state laboratory scientists to measure chemical-terrorism agents or their metabolites in people's blood or urine. NCEH is transferring analytic methods for measuring chemical-terrorism agents (including cyanide-based compounds and other chemicals) to South Carolina. In addition, NCEH instituted a proficiency-testing program to measure the comparability of the state's analytic results with results from the NCEH laboratory.

Preventing Health Effects That Result from Environmental Hazards

NCEH promotes safe environmental public health practices to minimize exposure to environmental hazards and prevent adverse health effects. Following are examples of such activities that NCEH conducted or supported in **South Carolina**.

- **Childhood Lead Poisoning Prevention Program**—The **South Carolina Childhood Lead Poisoning Prevention Program (SC CLPPP)** has received NCEH funding since 1992. In 2001, the program screened 46,018 children for lead poisoning; 566 children under 6 years of age had elevated blood lead levels.

SC CLPPP is using NCEH funds to develop and implement a childhood lead poisoning elimination plan, to update and evaluate the state's targeted screening and case management plans, to maintain and enhance its statewide surveillance system, and to increase primary prevention activities and strategic partnerships.
- **Public Health Inspections of Cruise Ships**—NCEH established the model Vessel Sanitation Program in 1975 to combine industry cooperation with CDC's ability to aggressively protect the health of travelers. The program helps the industry develop and implement comprehensive sanitation programs to minimize risks for gastrointestinal diseases. Every vessel that has a foreign itinerary and carries 13 or more passengers is subject to two unannounced inspections each year. These inspections result in safer vessels and sanitation

programs that protect the health of passengers and crew members. In 2003, CDC's Vessel Sanitation Program conducted one inspection of a cruise vessel with a stop in **South Carolina**.

Resources

NCEH develops materials that public health professionals, medical-care providers, emergency responders, decision makers, and the public can use to identify and track environmental hazards that threaten human health and to prevent or mitigate exposure to those hazards. NCEH's resources cover a range of environmental public health issues, including air pollution and respiratory health (e.g., asthma, carbon monoxide poisoning, and mold exposures), biomonitoring to determine whether selected chemicals in the environment get into people and how much, childhood lead poisoning, emergency preparedness for and response to chemicals and radiation, environmental health services, environmental public health tracking, international emergency and refugee health, laboratory sciences as applied to environmental health, radiation studies, safe disposal of chemical weapons, specific health studies, vessel sanitation, and veterans' health.

For more information about NCEH programs, activities, and publications as well as other resources, contact the NCEH Health Line toll-free at 1-888-232-6789, e-mail NCEHinfo@cdc.gov, or visit the NCEH Web site at www.cdc.gov/nceh.

