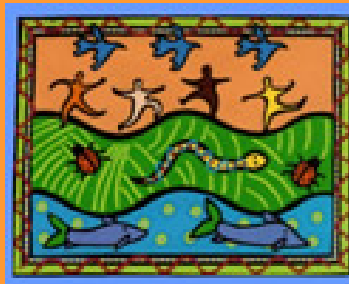


Environmental Public Health Practice in the Southeastern United States



Southeast Regional Academic Center
for Environmental Public Health



School of Public Health
University of Alabama at Birmingham

Environmental Public Health Practice in the Southeastern United States

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Summary of Environmental Public Health Practice Profiles for Ten Southeastern States

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Submitted to the
Division of Emergency and Environmental Health Services,
National Center for Environmental Health
U. S. Centers for Disease Control and Prevention



Southeast Regional Academic Center for
Environmental Public Health

School of Public Health, University of Alabama at Birmingham

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The Southeast Region Map



Introduction

The Federal Register for March 11, 2004, contained an announcement for “Regional Academic Environmental Public Health Centers.” The purpose of the announcement was “to facilitate the development of an integrated national system for academic institutions to assist and support state and local public health departments, and tribal health agencies in the delivery of environmental health (EH) services.” The announcement would fund five academic institutions to serve as regional centers. The award would be in the form of a cooperative agreement with the Environmental and Emergency Services Branch of the National Center for Environmental Health (NCEH) at the Centers for Disease Control and Prevention.

One of those regional centers, the Southeast Regional Academic Center for Environmental Public Health (SE-RAC) would be housed within the School of Public Health at the University of Alabama at Birmingham. The NCEH deemed that the region would include ten mainland U. S. states and two U. S. territories. Those states and territories are Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee, plus Puerto Rico and the U. S. Virgin Islands.

The NCEH asked the regional academic centers to develop a means by which a snap shot of the practice of EH in the southeast region could be presented. For SE-RAC this snap shot is captured in documents called Environmental Public Health (EPH) Practice Profiles. The content elements of the profiles were taken directly from the regional academic centers’ funding opportunity announcement. Those elements are presented in the template on page six of this summary.

The term “Core Elements” mentioned in Part One refers to the following nationally promulgated EH standards and guidelines:

- Ten Essential Services of Environmental Health
- Core Competencies for Local Environmentalists
- National Strategy to Revitalize Environmental Public Health

**STATE/TERRITORIAL EPH PRACTICE PROFILES – Template
(Revised February, 2006)**

Part One

- 01.** Brief Description of State
- 02.** Current description of state/territory EPH services and programs, including an organizational chart showing key positions relating to the administration of EPH services at the state level
- 03.** Enumeration and description of the EPH workforce
- 04.** Description of current state/territory activities addressing SE-RAC's "Core Programmatic Elements", i.e., the Ten Essential Services of EH, the 14 Core Competencies for EPH workers, and the 6 goals of the National Strategy to Revitalize EPH Services

Part Two

- 05.** Summary of existing state/territory EPH training plans and resources
- 06.** Assessment of EPH workforce training needs

Part Three

- 07.** Descriptions of current health hazard evaluations and assessment practices
- 08.** Descriptions of previous, current or proposed prevention efforts and practices to evaluate the effectiveness of those efforts
- 09.** Description of current EPH program evaluation and cost-effectiveness practices

Part Four

- 10.** Technical assistance/consultation resources needed to address state/territory priority EPH practice issues/concerns

Methods

The information provided in this summary is based on Environmental Public Health Practice profiles developed for each of the 10 states in the SE-RAC region. The information for these profiles was gathered during the time period December 2004 through August 2006, using a variety of techniques. Those techniques included Power Point presentations from state representatives; interviews during face-to-face state and territorial health department visits; reviews of information from the state health department websites; state partner completion efforts; and telephone interviews.

The presentations were made during the course of the SE-RAC Steering Committee convened in Birmingham in early December of 2004. Each state in the SE-RAC region was asked to select a representative to serve on the project Steering Committee. Those representatives were invited to come to Birmingham (at project expense) for a face-to-face, two-day meeting to begin planning operational procedures. A portion of time for that meeting was reserved for the state representatives who were able to come to deliver a slide presentation on their states' EPH services. Presentation guidelines were disseminated to the state representatives about one month prior to the December meeting.

Five representatives made slide presentations (AL, AR, FL, MS, and NC). Video recordings of those presentations are maintained at the SE-RAC office. However, none of these presentations provided all of the information on the template. One other state (GA) representative was present for the meeting, but had to return his office before being able to make his presentation. Six states' representatives were not able to attend the meeting and did not send their presentation information.

Over the next several months, a series of face-to-face interviews occurred with EPH directors and some of their key staff members. The SE-RAC project director went to Atlanta, Georgia; Columbia, South Carolina; Frankfort, Kentucky; and Baton Rouge, Louisiana; as well as to San Juan, Puerto Rico and Charlotte Amali, St. Thomas, U. S. Virgin Islands. These interviews provided opportunities to gather some of the information for the profiles, especially relating to the SE-RAC "Core Elements". Even though complete information was obtained from all of the states and territories about their use of the "Core Elements", getting information for other profile content items proved to be quite a challenge.

Assumptions made by the SE-RAC project staff about the state and territorial health departments' ability to easily retrieve or produce the information for the profile content items proved to be presumptive. Not one state, or territory, was able to quickly or easily pull up information to "fill in the all of the blanks" on the profile worksheets. Information such as workforce numbers, most recent budgets, training assessment or program evaluation practices was not readily available. A considerable amount of time lapsed as state partner and project team colleagues worked to create and compile the profile contents and, then, have those contents verified.

It is important to stress that the state partners and their colleagues were not evasive or resistant toward requests for information. The realities of time demands and more pressing state and local issues (such as dealing with the aftermath of hurricanes in 2004 and 2005) caused the state partners to put SE-RAC information gathering “on the back burner” until they could get to it.

In view of those realities, the SE-RAC Project Director and graduate research assistant went to the Internet and found a variety of state and national organization websites which contained some of the information needed to complete the profiles. Actually, a good bit of information was found this way. However, this information had to be verified at the state level as it was discovered that some website information was not kept up to date. The verification process produced further delays as the state representatives and their colleagues often took weeks or months to make the time to review, correct, update and confirm the information.

State partners who helped with the completion of the profiles were not given detailed instructions or pre-determined definitions of the content items, other than the “Core Elements”. Therefore, each profile reflects the state partner’s interpretation of information requested. These individual interpretations are most obvious in Part One as the state EPH services are described and in Part Three which addresses evaluation and assessment activities.

Finally, in June, 2006, the first drafts of the EPH practice profiles for the ten southeastern states were sent out for review in the states. From June through December, these drafts were re-written up to five times. The profile documents were issued in February, 2007.

The individual state profiles are available for review on the SE-RAC website: www.se-rac.uab.edu

NOTES:

All of the information presented in the individual state profiles and this regional summary is current as of August 31, 2006. The profile documents were issued in February, 2007.

Each profile reflects unique conditions and circumstances within each state in the southeast region. Even though the template for completing the profile was the same for all states, there is considerable variability among the profile information presentations.

A detailed comparison and regional synthesis of the state profiles into one regional summary document is not possible and would not be appropriate. However, after reviewing all ten of the profiles, it is possible to offer some highlights of the practice of EPH in the region.

Description of the Region



- The Southeast Regional Academic Center for Environmental Public Health defines its region to include 10 states in the southeastern U.S. The land mass of the region is approximately 477,766 square miles. These states have several large metropolitan areas and many rural communities. Of the 876 counties in the 10 states, 615 are classified as rural and 261 are urban.
- The southeast region is home to highly diverse habitats and species. The region contains an abundance of water resources including rivers, wetlands and coastlines. The region's physical environment benefits are being affected by "growing troubles" in the southeastern states resulting from rapid growth in the region in terms of the expanding human population and increases in business, industry, and military operation facilities.
- According to the U.S. Census Bureau's Interim Projections for the United States and States, April 2001 – 2030, the human population in the region in July, 2005, is approximately 64 million persons representing all age groups, socio-economic levels and ethnic backgrounds.
- The largest population states in the region are Florida, Georgia, and North Carolina. The least populated states are Arkansas and Mississippi.
- Table 1 highlights the numbers of people under age 5 and age 65 and older (as these members of these populations are known to be more susceptible to environmental health threats). Another vulnerable population group is those living in poverty.
- Table 1 displays the 3-year average (2002-2004) percentage of people living in poverty. The national average was 12.4%. Two states (FL and GA) approximated that average. The other eight states had rates higher than the national average.

Table 1. Selected Southeast Region Demographic Characteristics

Characteristics	AL	AR	FL	GA	KY	LA	MS	NC	SC	TN	Total
Total Population	4,527,166	2,777,007	17,509,827	8,925,796	4,163,360	4,534,310	2,915,696	8,702,410	4,239,310	5,965,317	64,260,199
Under 5 years	303,341	192,439	1,094,564	694,196	278,735	338,732	217,735	609,443	282,406	400,653	4,412,244
65 and older	602,411	382,276	3,017,357	856,108	519,544	539,017	354,283	1,037,474	529,410	747,646	8,585,526
% Persons in Poverty *	15.5%	17.6%	12.3%	12.0%	15.4%	17.0%	17.7%	14.8%	14.0%	14.9%	National 12.4%

* Income, Poverty, and Health Insurance Coverage in the United States: 2004. U. S. Department of Commerce. August, 2005.



Description of EPH Services and Programs

EPH Service Delivery Structure

The pattern for the administration of EPH services at the state level is depicted in the Table 2 below. The EPH administrative/management units are further sub-divided among various division, department, branch, or section operations. Details of the organization of each state EPH department are contained in charts which accompany the individual EPH Practice Profiles.

Table 2. EPH Services State Agency Alignment and Administrative/Management Units*

State	State Agency Alignment	EPH Admin/Mgmt Unit
Alabama	Department of Public Health	Bureau of Environmental Services
Arkansas	Department of Health and Human Services	Division of Health, Center for Local Public Health
Florida	Department of Health	Division of Environmental Health
Georgia	Department of Human Resources	Division of Public Health, Environmental Health and Injury Prevention Branch
Kentucky	Cabinet for Health and Family Services	Department of Public Health, Division of Public Health and Safety
Louisiana	Department of Health and Hospitals, Office of Public Health	Center for Environmental Health Services
Mississippi	Department of Health	Division of Health Protection, Office of Environmental Health
North Carolina	Department of Environmental and Natural Resource	Division of Environmental Health
South Carolina	Department of Health and Environmental Control	Bureau of Environmental Health
Tennessee	Department of Health	Division of General Environmental Health

*** A roster of the EPH Directors for the southeastern states is attached to this report.**

Each profile depicts the state's menu of EPH services which, for the most part, may be described as the traditional array of EPH services, e.g., food safety, onsite sewage, vector control, etc. All of the states' menus list services which may be codified into one or more of the Ten Essential Services of EH.

In addition to the rather traditional menu of EPH services offered in each state, there is a variety of EPH hot topics. Hot topics are those EPH service areas upon which the EPH Administrative/Management units in each state have placed special emphasis with designated personnel and funding due to conditions which are unique to the state's environmental health circumstances. The region's Hot Topics as of August, 2006, are presented in Table 3.

Regional “Hot Topics”

Table 3. Southeast States' "Hot Topics" as of August, 2006

State	“Hot Topics” and EH Programmatic Emphasis Areas
Alabama	Food Safety Information, Medical Needs Shelters, Information on Emergency Preparedness, Implementing and interpreting of New Onsite Rules and Regulations (particularly managing and permitting large onsite systems and soil science).
Arkansas	Food and beverage safety; clean indoor air (smoke-free businesses); Avian Flu; sewage disposal and sanitation; fluoride in public water supplies
Florida	Use of the Community Health Assessment Resource Tool Set (CHARTS); Protocol for Assessing Community Excellence in Environmental Health (PACE EH) projects in 27 counties; surface water – ocean and lakes; environmental public health tracking; and Avian Influenza preparedness; "smart growth" and built environment issues with state and local planning groups
Georgia	Updated food service establishment and swimming pool inspection rules; methamphetamine laboratory hazards; alternative on-site systems; ocean swimming advisories; and an EPH emergency response plan
Kentucky	Sewage treatment, West Nile Virus, Rabies control, lead poisoning, swimming pool sanitation, radiation exposure, radon gas, hotel/motel inspection, and inspection of school and confinement facilities
Louisiana	West Nile Virus, safe drinking water, sanitation services (of the beach, construction, commercial seafood, disease vector control, infectious waste, milk, dairy, onsite wastewater, retail food), and indoor air quality and mold
Mississippi	West Nile Virus, rabies, radon gas, carbon monoxide, hazardous substances, mold, radiological health and smoke alarms
North Carolina	mosquito- and tick-borne diseases, the regulation of public water systems and private wells in North Carolina, lead poisoning of children from common lead sources (paint, pottery, etc.) as well as emerging sources (drinking water), and the quality of the state’s recreational coastal waters
South Carolina	“All EH issues are Hot”
Tennessee	Appropriate Antibiotic Use, Bioterrorism Preparedness and Response, Chemical Terrorism, Emerging Infections Program, Environmental Epidemiology, Immunizations, Surveillance and Epidemiology, Surveillance and Epidemiology, Tuberculosis, and West Nile Virus.

EPH Services Funding

- A total of \$158,083,301 was available to fund EPH services across the region. That total reflects a mix of local, state, and federal dollars. Each of the states has its own funding cycle and its own method of reporting EPH-specific dollars. The exact budget periods were not specified. However, it is assumed that the information in Table 4 presents an overview of fiscal years 2004-05 or 2005-06. Some of the states separated their funding figures into local, state, and federal dollars; others reported one total amount. Due to the effort required to determine specific amounts, state funding totals do not include funding at the county, parish or city levels.

Table 4. Southeast Region Environmental Public Health Approximate Funding Fiscal Year 2005-2006

State	Total Funding	Funding Mix
Alabama	\$ 3,903,627	State dollars fund 100% of Bureau operations, 56% of Food, Milk, Lodging, 55% of Community Environmental Protection; federal funding accounts for the remaining percentages; total does not including county or city funding.
Arkansas	\$ 14,554,604	71.7% state and 28.3% federal
Florida	\$ 18,819,478	86% state and 14% federal
Georgia	\$ 14,028,881	\$1,596,933 in state dollars; \$12,431,948 from DHHS for county services; plus over \$1 million for special programs such as Chemical Hazards.
Kentucky	\$ 10,283,500	36% state, 14% federal, and 50% from fees
Louisiana	\$ 32,600,000	99% state dollars. 50% for state-wide sanitarian services; 7% for central office; 6% for Regional Offices; and 37% for Parish Health Units. Receives about 1% (\$300,000) of its budget in grants from the FDA and the EPA.
Mississippi	\$ 6,400,000	64% state, 36% federal
North Carolina	\$ 23,693,211	42% state, 25% local receipts, and 33% federal
South Carolina	\$ 23,800,000	Local sources (public health regions and counties) \$18 million, \$2.1 million state, \$3.7 million fees
Tennessee	\$ 10,000,000	100% state for General EH; for BT and ATSDR, \$13,840,000.
Total	\$158,083,301	

- For the past five fiscal years, five states (AL, AR, KY, LA, and SC) reported that their EPH service funding has decreased. Three states (FL, GA, and TN) reported level funding for those years. Two states (MS and NC) reported an increase during the same time period.

- The EPH workforce across the region, as of August, 2006, consisted of approximately 5,266 persons. The total includes support staff as well as a variety of EPH professionals and technical experts (e.g., sanitarians, engineers, plumbers, health educators, and social workers). This number includes EPH staff at state office, regional/district/area, and county/city levels. Table 5 provides an enumeration of the total EPH workforce for each state. The individual profiles provide more details on the workforce and the requirements for new hire, entry-level EPH positions.

State	Workforce	State	Workforce
Alabama	383	Louisiana	454
Arkansas	261	Mississippi	177
Florida	1,415	South Carolina	360
Georgia	574	North Carolina	1,500
Kentucky	375	Tennessee	124
		Total SE Workforce	5,623

- Assessment of state practices relating to SE-RAC's Core Elements (see box below) reveals that each state does have an array of services which is compatible with the Ten Essential Services of EH (TES-EH). There was broad familiarity with the TES-EH across the region.
- Some leaders in the states were familiar with the Core Competencies for Local Environmentalists. However, no state has incorporated these competencies into their workforce development efforts. Also, very few leaders in the region were familiar with the six goals of the National Strategy to Revitalize EPH in the U.S.
- As a consequence of a partnership with the UAB School of Public Health, one state, Alabama, had developed instruction on the TES-EH and Core Competencies to a community-focused training curriculum. That partnership also led to the incorporation of the six national strategy goals in a set of EPH planning principles.

The “core elements” are program planning and evaluation guidance approaches supported by the National Center for Environmental Health as emphasis areas for the five Regional Academic Centers for Environmental Public Health. The approaches consist of:

- the Ten Essential Services of Public Health (TES) and/or Environmental Health (TES-EH);
- the Fourteen Core Competencies for Local Environmental Health Practitioners (as described by the Environmental Health Competency Project); and
- the Six Goals of the CDC/NCEH document, A National Strategy to Revitalize Environmental Public Health Services.

Workforce Training and Education



Academic Resources

- In the southeast region there are 29 different academic environmental health and public health programs, as well as specifically-funded preparedness and leadership centers.
- Ten of these programs are accredited by the Association of Environmental Health Academic Programs (AEHAP). The locations of these programs are listed in Table 6.
- Twelve Colleges and Universities have programs which are either full or associate members of the Association of Schools of Public Health. These programs are listed in Table 7.

Table 6. AEHAP Accredited Programs in the Southeast (listed in alphabetical order)

AEHAP Accredited Program	Location
Benedict College*	Columbia, SC
East Carolina University*	Greenville, NC
Eastern Kentucky University*	Richmond, KY
East Tennessee State University*	Johnson City, TN
Fort Valley State University	Fort Valley, GA
Mississippi Valley State University*	Itta Bena, MS
North Carolina Central University	Durham, NC
Spelman College*	Atlanta, GA
University of Georgia*	Athens, GA
Western Carolina University*	Cullowhee, NC

* Also accredited by National Environmental Health Science and Protection Accreditation Council (EHAC)

Table 7. Association of School of Public Health (ASPH) Members in the Southeast

ASPH Member Schools	Location
Full Members:	
Emory University Rollins School of Public Health	Atlanta, GA
Tulane University School of Public Health and Tropical Medicine	New Orleans, LA
University of Alabama at Birmingham School of Public Health	Birmingham, AL
University of Arkansas for Medical Sciences Dr. Fay Boozman College of Public Health	Little Rock, AR
University of Kentucky College of Public Health	Lexington, KY
University of North Carolina at Chapel Hill School of Public Health	Chapel Hill, NC
University of South Carolina Arnold School of Public Health	Columbia, SC
University of South Florida College of Public Health	Tampa, FL
Associate Members:	
Florida International University Robert Stempel School of Public Health	Miami, FL
Louisiana State University Health Sciences Center School of Public Health	New Orleans, LA
University of Florida College of Public Health and Health Professions	Gainesville, FL
University of Louisville School of Public Health and Information Sciences	Louisville, KY



Other Training and Education Resources

- In addition to the academic programs listed in the preceding tables, there are 7 specifically-funded CDC or HRSA preparedness and leadership centers located in schools of public health throughout the region. Two of these programs are Public Health Training Centers which serve all of the region's states, except Florida and Georgia. There are six Centers for Public Health Preparedness Training located in Alabama, South Florida, Georgia, Louisiana, and North and South Carolina.
- Several states reported use of federal links as part of their training resources. These links include the USDA's ORA U. the CDC, and the TrainingFinder Real-time Affiliate Integrated Network (TRAIN).
- All of the states reported having limited resources to send workforce members to professional conferences or training programs outside their state's geographic boundaries, even though there was consensus on the value of such workforce development opportunities.
- All of the states have established pre-service training programs for newly hired, entry-level workers.
- All of the states recruit new hire, entry level workers who have at least bachelors' degrees in one of the basic environmental sciences, e.g., biology, chemistry, or environmental science.

Training Needs Assessment Practices

- No formal, routine patterns of conducting workforce member training needs assessments are in operation in the region. Even though all of the states acknowledged that such assessments were important, they also noted that they had not been able to allocate time and other resources needed to formally and routinely conduct the assessments, analyze and report the findings, and develop training programs to meet the identified needs.
- Such assessments seem to be done on an occasional basis. For example, Alabama completed an assessment in 2002, while Florida was conducting one at the time the EPH practice profiles were being completed.
- Several states reported that training needs assessments were completed during their annual Environmental Health Association meetings.
- One state, Mississippi, conducts training needs assessments during program evaluation/quality assessment reviews with District managerial staff.

Current Evaluation and Assessment Practices



[All of the states reported use of a variety of evaluation practices.]

Health Hazard Evaluations and Assessments

- All of the states reported that they have established procedures for conducting these evaluations and assessments. Detailed practices were reported from Alabama, Florida, Louisiana, and Tennessee.

EPH Prevention Programs

- All of the states reported that several of their traditional EPH services (e.g., food safety, onsite sewage, and vector control) have prevention as their goal and also had community prevention education as standard components.
- Arkansas and Florida reported detailed prevention evaluation practices.

EPH Services Evaluation and Cost-Effectiveness Practices

- All of the states conduct program evaluations in terms of collecting process data on activities such as numbers, types, and outcomes of complaint investigation; numbers and types of permits issued; food service and retail establishments inspected; vector control practices; and drinking water well testing.
- None of the states had developed practices for conducting cost-effectiveness studies. Even though all states agree that studies of cost effectiveness would provide useful information, there was concern that conducting such studies would be a costly venture in terms of finding and paying for personnel with the necessary expertise; acquiring the appropriate kinds of hardware and software; allocating staff time and resources to support such studies.



Technical Assistance, Consultation, and Training Needs



- The training needs listed by the state partners include training for all aspects of EPH including both entry-new hire and master-practitioner levels of training.
- There is interest among the states in terms of “cutting edge” or new developments and techniques associated with various practices in EPH service delivery, e.g., Food Safety and Onsite Sewage.
- There is also interest in developing skills in electronic data collection and management systems, i.e., Information Technology.
- Information Technology is highly desired for applications to a variety of management practices as well as for public health monitoring and surveillance.

The following information presents each state’s expressed needs for technical assistance, consultation, and training. There is no uniformity in the way the state representatives chose to respond to this section of inquiry.

Alabama:

- A. Specific training on FDA Food Code which is the basis for the Alabama Food Service Rules and Regulations
- B. Retail Food Service Establishments Plan Review
- C. Temporary Food Service Training
- D. Onsite Sewage Plan Review on Specific Techniques (e.g., drip, mounds, low pressure pipes)
- E. Drip Irrigation Training with Control Fill/mounds
- F. Water Reuse and Conservation
- G. Proper Waste Disposal and Remediation of Methamphetamine Labs
- H. Training and Application Usage for Computer Regarding Onsite and Food Regulations.

Arkansas:

An adequate data collections system is essential. Management needs to be able to assess the work being done. A central data collection tool would allow for management to gather different information from the same data set. This would be a great asset to have as support for a quality assurance program.

Arkansas would appreciate guidance on data collection systems. One of the issues to consider when we look at data systems is that a private company is not the ideal host for the data we collect. Ideally, a government agency would be the most logical choice to host the system. This could be done at the state level if we could find the proper data system. It would be great if this was done through CDC. Then CDC would have access to data from each state that is using the system.



No specific needs identified.

New EHS Managers' Training; EHS Emergency Response; and Chem/Rad Terrorism Response

We need guidance on environmental public health monitoring and surveillance, as well as program evaluation. We would love to have clear guidance from our federal colleagues and we would also like to have consistency among federal agencies.

Since late August of 2005, the leadership in the Center for Environmental Health Services (CEHS) has been working to maintain EPH services in the parishes which did not receive major damage from Hurricanes Katrina and Rita. However, in the greater New Orleans area and the parishes along the Gulf Coast, these leaders are facing the daunting task of re-building the EPH support infrastructure and workforce. Therefore, specific assistance and consultation on techniques and methods for re-building damaged or destroyed EPH service systems is a critical need.

Even before the 2005 Hurricane season, the CEHS was anticipating budget reductions which would impact, among other things, the size of the workforce, the replacement of computers and software, and training opportunities for workforce development. One consequence of the hurricane season is that EPH support resources have become even slighter; thus, magnifying the difficulties in maintaining current EPH capacity and, perhaps, causing the revitalization of Louisiana's EPH services to be significantly delayed.

Program staff is limited and most staff that provide technical EH training have other duties in addition to training responsibilities. Additional staff members are needed to provide training in all areas of EH. EPH practice issues where technical/training resources are needed include: National program standards for onsite wastewater disposal; legal and enforcement issues; and evaluation of environmental health hazards not addressed by existing regulations or guidelines such as indoor mold hazards, and vector harborage.

Additional resources are always welcome for the improvement of the environmental health programs in South Carolina. Besides the availability of on-line USDA and CDC courses for food protection, and the occasional area conferences, there is need for additional cost effective resources for training in all environmental health disciplines.

North Carolina:

- ## Tennessee:

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Acknowledgements



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During the time the profiles were developed, the SE-RAC Principal Investigator was Dr. Kent Oestenstad and Dr. Elizabeth Maples was a Co-investigator. Both are with the Department of Environmental Health Sciences, UAB School of Public Health. This work is part of the continuing tribute given to Dr. Ken Dillon who was the original Principal Investigator for the project which led to the creation of SE-RAC.

