

Officials laud task group's work

"You're on the cutting edge," Larry Posey, an official from the Centers for Disease Control and Prevention (CDC), told members of the South Carolina Task Group on Toxic Algae in October. Posey and Dennis Christianson, also with the CDC, made a site visit to the state to follow up on the second year of CDC funding granted to the S.C. Department of Health and Environmental Control (DHEC) for the *Pfiesteria*-Related Illness Surveillance and Prevention Program under the direction of Robert Ball.

Both Posey and Christianson said they were impressed with the task group's activities to prepare the state for *Pfiesteria*-related outbreaks and possible effects on human health. The task force was not formed out of any political entity, but rather, came together as a result of the concern over the potential threat of toxic algal blooms like those other Atlantic and Gulf coastal states have experienced. "Just because we don't have a crisis doesn't mean that we don't want to be prepared," said Rick DeVoe, S.C. Sea Grant director and chair of the task group, who gave the CDC officials an overview of the group's efforts.

The \$160,000 CDC funding enables DHEC staff to work collaboratively with the Department of Natural Resources (DNR), the Medical University of South Carolina, the S.C. Sea Grant Consortium, and other agencies, coordinating activities

with the Toxic Algae Task Group.

In addition to DeVoe's general summary, other members filled the officials in on specifics. Researcher Alan Lewitus, University of South Carolina-Baruch Marine Laboratory, explained current research efforts involving lesion events in the upper

Cooper River. Biologist Phil Maier from the DNR Marine Resources Research Institute discussed the menhaden sampling.

John Ramsdell, chief of Coastal Research at the National Ocean Service, discussed work conducted by the NOAA Marine Biotoxins

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Red tide research

S.C. Task Group scientists are focusing research efforts on what appears to be a new red tide in state estuaries. Red tides, a common phenomenon in many of the world's estuarine regions, are algal blooms that reach densities so high that the water becomes discolored. In Spring 1998, the first report was documented of a red tide in a S.C. estuary—Bulls Bay near McClellanville. The following spring, the same red tide phenomenon reappeared at several sites, including North Inlet estuary (near Georgetown), Bulls Bay, and Broad Creek (Hilton Head Island).

The red tide was long-lasting, about two months, and intense enough at times to produce a deep orange-red color. A Hilton Head fisherman, who had never before seen the phenomenon during his thirty years of fishing in the area, likened the water's color to "Tabasco sauce."

The dinoflagellate responsible for these red tide blooms may be a new species, according to Alan Lewitus, marine scientist at USC Belle Baruch Institute for Coastal Research. Lewitus is currently working to identify the species. It is unknown whether such blooms are harmful to the environment, but "red tides in general can be a warning signal of degrading ecosystems," Lewitus says.

Task group members implemented a multidisciplinary research program to examine the biology and environmental ecology of this species, with the goal of understanding factors causing its recent occurrence and widespread distribution in S.C. estuaries. Study results will be presented at two meetings: the 2000 Ocean Sciences Meeting in San Antonio, Texas (January 24-28), and the International Conference on Harmful Algal Blooms 2000 in Tasmania, Australia (February 7-11).

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Program to purify the *Pfiesteria* toxins and to define their harmful effects. Eric Lacy, director of MUSC's Marine Biomedical Program, reviewed the educational efforts aimed at fishermen and non-professionals such as high school science students. Bruce Ribner, director of medical epidemiology at MUSC, discussed medical evaluation and education. Natalie Scruggs, *Pfiesteria* program coordinator, presented the highlights of the PEAS (Possible Estuarine Associated Syndrome) and HAB (harmful algal bloom) surveillance program. David Baize, director of DHEC's Environmental Quality Control

Division of Water Monitoring, Assessment, and Protection, summarized the EQC protocols and procedures in place.

Posey and Christianson saw the task group in action at its bimonthly meeting. Currently, the group's focus is on more extensive ways to reach the general public with information about HABs. The officials listened intently to the group's ideas, which they termed "creative and effective." One such plan is to implement a volunteer water monitoring program, enlisting as volunteers participants in environmental activities such as Beach Sweep/River Sweep, Adopt-a-Beach, Adopt-a-Landing, and others.

Posey echoed task group members' views when he asked if other states knew of their work and endorsed it as invaluable. The task group has maintained an interest in working collaboratively with other states. However, other states have yet to show enough interest in collaborating with the S.C. task force, members said. Posey commended the task group's efforts to collaborate and told members to keep trying. "They need to know what you do," Posey said.

The S.C. Task Group on Toxic Algae will serve as the local host for a national conference on *Pfiesteria* in Charleston in March 2000.

Human health effects of toxic algae treated

In July, two speakers described innovative measures to treat and diagnose symptoms of PEAS (Possible Estuarine Associated Syndrome) to the S.C. Task Group on Toxic Algae. Focusing on the human health aspect of *Pfiesteria piscicida*, Ken Hudnell and Richie Shoemaker each explained his recent efforts.

Shoemaker, a practicing family physician in Pocomoke City, Maryland, provided the first case report for *Pfiesteria*-associated human illness reported in the *Maryland Medical Journal* in 1997. Currently, he treats patients with persistent *Pfiesteria*-associated illness by oral administration of cholestyramine, a drug most commonly used for lowering cholesterol. He reports dramatic health improvements in his patients treated with cholestyramine.

Hudnell, a neurotoxicologist with the U.S. Environmental Protection Agency, has preliminary evidence that contact with estuarine waters where *Pfiesteria* may be killing fish might adversely affect a person's ability to detect visual patterns.

Hudnell uses a simple measuring device to screen the visual contrast sensitivity (VCS) of persons who may have come in contact with such waters.

The contrast sensitivity screening measures the amount of contrast needed between dark and light bars for a person to see a pattern.

Because the subjects Hudnell tested in Charleston had not been

recently exposed to fish kills, his results will provide background levels in these S.C. state personnel in the event of *Pfiesteria* exposure. Hudnell's work suggests a persistent health effect from contact with *Pfiesteria* toxin(s). Previous studies indicate that symptoms such as short-term memory loss, confusion, and other cognitive impairments have been temporary in nature.

Web Sites on *Pfiesteria*

NC State University of Aquatic Botany Laboratory *Pfiesteria* Page:
www2.ncsu.edu/unity/lockers/project/aquatic_botany/pfiest.html

S.C. Department of Health and Environmental Control:
www.state.sc.us/dhec/fspfies.htm

Woods Hole Oceanographic Institution:
www.redtide.whoi.edu/hab/

University System of Maryland:
www.mdsg.umd.edu/fish-health/pfiesteria

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