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SPORT FISHERY RESEARCH FOUNDATION

SYNOPSIS OF RESEARCH PROPOSAL

Institution	Title	Amount Requested
Tulane University	Polychlorinated Biphenyl's Translocation and Environmental Control	First yr. - $16,400 Second yr. - 8,600 Total - $25,000

Supervising Investigator: Dr. Robert Reimers, Assistant Professor, Dept. of Environmental Health Sciences.

Advisory Investigators: Dr. Gerald E. Gunning -- Professor, Dept. of Biology; Dr. J. Walter Mason -- Associate Professor, Dept. of Environmental Health Sciences.

Student Investigators: Ms. Mary Wilke, Ph.D. candidate; Mr. Henry S. Gardner, Jr.; M.S. candidate.

Synopsis: Polychlorinated biphenyls (PCBs) comprise a group of highly stable, heat-resistant chemical compounds which have been utilized for many years in a variety of industrial and manufacturing processes in the United States and abroad. These ubiquitous chemicals have been found in increasing amounts in both aquatic and terrestrial environments throughout the world. Previously conducted investigations have implicated these compounds in the observed reproductive malfunctions in fish, birds, and mammals. More recent studies have revealed that sublethal concentrations may adversely affect human liver function, as well.

Although it has been well established that organisms, including fish, may accumulate concentrations of PCBs up to 50,000 times the concentration observed in water, the mechanisms for accomplishing this amazing phenonmenon are not well known. In order to provide such needed information, the investigation will attempt (1) to determine the translocation mechanisms and seasonal fluctuations of PCB bioaccumulation in fish collected from a known contaminated aqueous environment (A freshwater river and reservoir) and (2) to conduct laboratory investigations on possible PCB decontamination methods.

Nine collection stations will be established on the study waters (Coosa River, Logan Martin Reservoir and tributaries) both upstream (control stations) and below the site of a major manufacturer of PCBs. Seasonal collections from each station will be obtained, including samples of soils, sediments, vegetation, water, fish, crayfish, and plankton. Information obtained from analysis of these samples will be correlated with known climatology, hydrology, and water quality data. Midway through the field studies, laboratory studies will be initiated to determine the possibility of inducing degradation of PCBs to less harmful compounds by bacterial infusions. (Preliminary studies conducted in Canada have suggested the possibility that bacteria strains may be able to metabolize PCBs).

After analysis of the data, a final report will be prepared which will include possible recommendations for in-stream moderation of PCBs contamination.

Recommendation: This research proposal is highly recommended for funding by the Environmental Committee of the American Fishing Tackle Manufacturers Association. The research objectives are well predicated, the research team well-qualified, and the proposed methodology promising for accomplishing project objectives.

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