



## WATER RESOURCES RESEARCH GRANT PROPOSAL

**Project ID:** 2003MS19B

**Title:** Chemical Mixtures: Consequences of WNV Eradication on Water Quality

**Project Type:** Research

**Focus Categories:** Sediments, Toxic Substances, Water Quality

**Keywords:** ecosystems, mixtures, pesticides, residues, sediments, toxic substances, water quality

**Start Date:** 03/01/2003

**End Date:** 02/29/2004

**Federal Funds:** \$16540.00

**Matching Funds:** \$33081.00

**Congressional District:** First

**Principal Investigators:** Slattery, Marc

**Abstract:** Recent outbreaks of West Nile Virus (WNV) throughout the United States, and particularly in the Mississippi Valley States, have spurred plans to control the vector (= *Culex* mosquito). A probable phase in each plan requires using chemical agents that affect either adult or larval vector life stages. Chemical agents commonly used to control mosquito vectors are non-species specific pesticides that will potentially interact with non-target aquatic organisms. These compounds enter the aquatic environment via direct or indirect routes eventually becoming part of water and sediment matrices. Most of the WNV vector control compounds are hydrophobic. Upon entering the aquatic environment they readily partition from surface waters onto particulate organic matter in the water column or directly onto the sediment. Within aquatic matrices through direct contact, respiration or indirect ingestion non-target organisms are exposed to vector control compounds individually or as mixtures with persistent or transient anthropogenic compounds such as regional crop pesticides and metals. Individually or as mixtures, acting additively or synergistically, these compounds can potentially affect adult and juvenile life stages of non-target organisms. At the present time, there is limited knowledge regarding effects of WNV vector control compounds in mixtures. Evaluating water quality and aquatic habitat are critical to an overall assessment of vector eradication programs. This proposal directly addresses Mississippi Water Research and South Atlantic-Gulf Region priorities related to water quality, particularly with respect to

needs addressing protection of water and sediment from environmental degradation.

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