



WATER RESOURCES RESEARCH GRANT PROPOSAL

TITLE: Sunlight Induced Degradation of Agricultural Pollutants in Wetlands

DURATION: 9/1/96 to 8/31/98

FEDERAL FUNDS REQUESTED PER YEAR: YRS: \$20,290 YR2: \$19,790

NON-FEDERAL MATCHING FUNDS: \$40,630 \$39,760

PRINCIPAL INVESTIGATOR: Yu-Ping Chin, The Ohio State University

CONGRESSIONAL DISTRICT: Fifteenth

STATEMENT OF CRITICAL REGIONAL OR STATE WATER PROBLEM:

Non-point source pollution from surface run off contaminated with agrochemicals threatens a number of communities in the North Central Region that rely on surface water for both drinking water and recreational uses. Moreover, non-point source contamination is difficult to control because it may be distributed across large areas of a watershed. Surveys conducted by the Ohio Sea Grant Program showed that the two top areas of concern among respondents were water quality and the elimination of persistent toxic substances from surface waters.

Wetlands may provide a means of managing water quality since the hydrology of a watershed will often result in the collection of water from diffuse sources into wetland basins before final discharge to receiving waters. The preservation or creation of wetlands may reduce the loading of pesticides and other nonpoint source pollutants into surface waters. Thus, research into understanding the fate of micropollutants in wetland surface waters can help local, state, and the federal government develop and implement innovative initiatives to safeguard our surface water resources.

STATEMENT OF RESULTS AND BENEFITS:

The results from this research will help us better understand the role of wetlands in providing a "buffer zone" that could enhance the water quality of streams that enter receiving waters. Additionally, the proposed research will greatly advance our understanding of the processes that control the fate of pollutants in coastal waters. Because of current interest in the restoration of wetlands, understanding photochemical mechanisms that control the transformations of pollutants is critical to ascertaining wetland's effectiveness as "photochemical reactors".

These results will provide the proper tools to best design water flowpaths in wetland basins for purposes of remediating contaminated waters. Moreover, modeling sunlight degradation processes will aid engineers in the design of wetland basins that would

maximize the destruction of the target pollutants. Finally, the results of the proposed research will aid those parties and agencies responsible for maintaining the surface water quality, and its impact on the delicate ecosystems that are unique to surface waters and their associated watersheds.