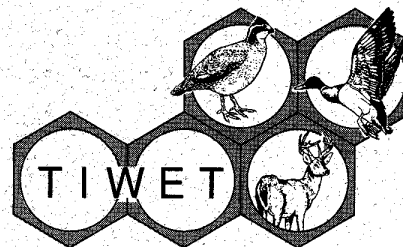




The Institute of  
Wildlife & Environmental Toxicology



The Department of Environmental Toxicology

CLEMSON UNIVERSITY

November 1, 1993

OFFICE OF THE DIRECTOR AND DEPARTMENT HEAD

Dr. Michael Kenna  
Green Section Research  
USGA  
P.O. Box 2227  
Stillwater, OK 74076

Dear Dr. Kenna:

I refer to our telephone conversation on October 28, 1993, and the Annual USGA Environmental Research Report. We are now completing several years of efforts at the Ocean Course at Kiawah Island. As we notified you several months ago, that final report will be available by the end of December, 1993. Data acquisition is still underway for several initiatives, and we are currently writing up the overall report, including the individual chapters. Besides the history of our interactions with the Ocean Course at Kiawah Island, and our environmental concerns in this initiative, the following chapters will be represented:

1. "Hydrographic Characteristics in Planktonic Productivity: baseline estimates in Chlorophyll A and organic biomass in two ocean course lagoons."
2. "Nutrient Input and Distribution in Two Ocean Course Lagoons at Kiawah Island."
3. "Biochemical Assessment of Wildlife Exposure to Pesticides at the Ocean Course at Kiawah Island, South Carolina."
4. "Assessment of Potential Avian Exposure to Organophosphorus and Carbamate Pesticides on a South Carolina Golf Course."
5. "Determination of Pesticide Movement of Chlopyrifos and Bendiocarb Through Two Soil Matrices."
6. "Golf Course Chemical Management Practices and Their Effects on Sheepshead Minnows and Mosquito Fish: a comparison of in situ and laboratory data."
7. "The Utilization of Plant Ecotoxicology to Assess Biological Response to Input of Pesticides at the Ocean Course at Kiawah Island."

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As you can see, the thrust of the research has moved to assessment of environmental fate and effects of pesticides and nutrient input related to the response of plants and wildlife. These data are currently being synthesized in terms of an ecosystem approach to golf course assessment. We are also completing efforts in the utilization of data in an ecological risk assessment for golf course management practices, and how this process could be widely implemented by managers in conducting benefit/cost analysis for important management practices, particularly those related to pesticides and nutrients.

This rather large final report will be broken down into stand-alone chapters, which could be easily moved into a publication phase. We intend the document to be presented to you as a thorough overview of our work, in terms of a technical report, but easily extracted for scientific articles to be published in the peer-reviewed scientific literature. Since it is of great concern for the United States Golf Association through its Green Section Research Committee, to move new science and technology transfer forward, we felt that it was appropriate to approach our final report in this manner. It won't be the final technical report that we perceive as having the major impact, but more the scientific articles and ultimate transfer of information.

As you requested, it will be our pleasure to make a presentation on this overall program in April of 1994. Please let us know the time and place. I propose that among the seven graduate students involved in this project, our two lead students, Lesa Fouts, a doctoral candidate, and Thomas Rainwater, a M.S. candidate, make the formal presentation before the United States Golf Association Green Committee. They have some very exciting ideas in moving forward with the project at the Ocean Course. They can lay out the final results of the current project, and where this research has lead us in better definition of several additional projects that will be of great value to golf course management in addressing environmental issues.

Thank you again for your very enthusiastic support of our work.

Sincerely,



Ronald J. Kendall, Ph.D.  
Professor and Head,  
Environmental Toxicology  
Director, TIWET

RJK/bac

cc: Mr. Jim Snow, National Director, USGA Green Section  
Drs. M. Hooper, S. Klaine, T. La Point, and C. Weisskopf

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