

**CURRICULUM VITAE**  
ADMINISTRATIVE EMPHASIS

Joseph H. Rule  
Emeritus Professor, Department of Ocean, Earth and Atmospheric Sciences  
College of Sciences  
Old Dominion University  
Norfolk, Virginia  
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**EDUCATION**

Ph.D., Agronomy (Soils), University of Missouri, 1972  
M.S., Agronomy (Soils), Minor - Geology, University of Tennessee, 1970  
B.S., Agriculture, University of Tennessee, 1967

**PROFESSIONAL EXPERIENCE**

1963-1967 Undergraduate Laboratory Assistant in Soil Chemistry Laboratory at University of Tennessee, Knoxville

1967-1970 Graduate Research Assistant in soil chemistry and mineralogy at University of Tennessee

1970-1972 Graduate Research Assistant in soil chemistry and fertility at University of Missouri, Columbia

1973-1974 Post-Doctoral Fellow, Environmental Trace Substances Center, University of Missouri, Columbia

1974-1976 Visiting Assistant Professor of Geological Sciences, University of Tennessee, Knoxville

1976-1980 Assistant Professor, Geophysical Sciences, Old Dominion University, Norfolk, Virginia

1976- 1985 Joint Appointment, Assistant/Associate Professor of Oceanography, Old Dominion University

1977-1980 Adjunct Assistant Professor of Geological Sciences, University of Tennessee, Knoxville

1979-1985 Joint Appointment, Assistant/Associate Professor, Biological Sciences, Old Dominion University

1980-1994 Associate Professor, Geophysical Sciences, Old Dominion University

1991 Fulbright Scholar - Lecturing in Environmental Sciences,. Marie Curie Sklodowska University, Lublin, Poland

1992-1994 Assistant Chair, Geological Sciences Department, Old Dominion University

- 1994-1995 Chair, Department of Geological Sciences, Old Dominion University
- 1995-1998 Associate Professor, Department of Chemistry and Biochemistry, Old Dominion University
- 1995-2003 Associate Dean, College of Sciences, Old Dominion University
- 1998-present Professor, Department of Ocean, Earth and Atmospheric Sciences, Old Dominion University
- 2001-2005 Adjunct Professor, Department of Horticulture, Virginia Tech, VA Beach Extension Station
- 2003 Interim Dean, College of Sciences, Old Dominion University
- 2003-2006 Associate Dean, College of Sciences, Old Dominion University
- 2006-2007 Interim Dean, College of Sciences, Old Dominion University
- 2007-2008 Associate Dean, College of Sciences, Old Dominion University
- 2008-present Emeritus Professor, Department of Ocean, Earth & Atmospheric Sciences

## **UNIVERSITY SERVICE**

### **University of Tennessee**

- 1975-76 Chair of Geology Department's Graduate-Staff Seminar Committee

### **Old Dominion University**

- 1976-77 Member, Research Overhead Fund Committee; Member, Departmental Graduate Committee
- 1976-77 Prepared Field Trip Guidebook for Physical Geology Laboratory
- 1977-78 Member, School of Science Library Committee; Coordinator of Library purchases for Geophysical Sciences section of P&GS Department; Member, Departmental Graduate Committee; Undergraduate Advising
- 1978-79 Member of the ODU Barrier Island Program Advisory Committee; Undergraduate Advising
- 1979-80 Member, School of Sciences and Health Professions Shop Committee; Student Consumer Affairs Committee; Joint Appointment to the Department of Biological Sciences
- 1980-86 Member of Faculty Senate from Geological Sciences
- 1980-81 Member, School of Sciences and Health Professions Principal Investigators Committee and Shop Committee; Geophysical Sciences Tenure Committee; Library Committee of Faculty Senate

- 1980-88 Chair, Geophysical Sciences Departmental Tenure and Promotion Committee
- 1981-91 Graduate Program Director, Department of Geological Sciences
- 1982-83 Chair of the Faculty Senate Committee C, Library Committee
- 1983-84 Member of Senate Committee H, Nominations and Elections
- 1984-85 Chair of Senate Committee H, Nominations and Elections
- 1984 Member of the 15th edition of Standard Methods for the Examination of Water and Wastewater review committee, published by the American Public Health Association
- 1988-1991 Member of the University Graduate Appeals Committee as College of Sciences representative
- 1990 Invited participation in Workshop on Fate and Transport of Toxic Materials in Coastal Systems. Chesapeake Research Consortium and the Scientific and Technical Advisory Committee of the Chesapeake Bay Committee
- 1992-94 Representative on the College of Sciences Operations Committee
- 1995-03 Thesis & Dissertation Reviews in the College of Sciences; Member of the Virginia Space Grant Consortium Advisory Committee; Nominations for the College's Distinguished Visiting Lecture Series; Administration of Graduate Financial Aid to departments in College; coordination for the selection of the College's Outstanding Graduate Teaching Assistants
- 1995-97 Member of the OCCS/University www Committee
- 1996-99 Invited reviewer of the Environmental Sciences applications of the Fulbright Program
- 1996-03 Member of the Kaufman Outstanding Undergraduate Award Committee; Freshman Debut Committee
- 1996-99 Member of the University Technology Advisory Committee; Chair of the GIS subcommittee
- 1999-03 Member of the University Advisory Council on Technology; Chair of the E-Learning subcommittee; member of University Faculty Grievance Committee
- 2001-03 Member of the SPEAK Presentation Committee for International GTA applicants

## **MAJOR ACCOMPLISHMENTS**

### **Research**

The research program funded by the Energy Research and Development Administration received international acclaim at the Conference on Reclamation of Devastated Ecosystems, Reykjavik, Iceland, July 1976. An invitation was extended to expand coverage on the presentation for another international convention.

Participated in the NSF funded investigation of a major crude oil spill to investigate trace metal partitioning. Traveled to the Straits of Magellan, Chile, to sample beach and estuarine sediments.

Research appointment at the Savannah River Ecology Laboratory, Aiken, SC, to investigate toxic effects of trace metals on herbaceous plants.

Investigated trace metal contamination of soils from National Parks in Poland. Traveled to Poland to collect soil samples.

Research on bio-availability of trace metals, their geo-chemical distribution and environmental monitoring, using herbaceous plants resulted in several publications and international conference presentations including Vienna, Austria; Paris, France; Warsaw, Poland and Taipei, Taiwan.

### **Administrative**

Fulbright Scholar Award; Lecturing in Environmental Sciences, 1991, Marie Curie Sklodowska University, Lublin, Poland.

Member of group that submitted winning proposal for 1996 College of Sciences Distinguished Visiting Lecture Series

Developed College of Sciences Thesis & Dissertation Submission Procedures, Word document templates and related information and placed on college web site

Created the College of Sciences Graduate Dominion Scholar Program by reallocation of graduate stipend budgets across the college

Authored the 1998 College of Sciences Technology Plan

Subcommittee Chair; prepared E-Learning report for the 2000 UACT Technology Plan

Prepared major revision of the College's Adjunct Faculty Handbook

Prepared the College of Sciences Graduate Recruitment Plan

Authored the Graduate Program Director's (GPD) Handbook for the College of Sciences

Instrumental in developing a special presentation session (SPEAK Presentation) for International students desiring GTA appointments who marginally fail the SPEAK Test

Participated in developing the College's strategic Plan

Participated in establishing College priorities for the Capital Campaign

Developed resource information about the College of Sciences for use in the Capital Campaign

Coordinates activities of the College's External Advisory council

Revised the College of Sciences GPD Handbook and placed on the web

Established annual Fall orientation for incoming graduate students in the College which was expanded to include students from all colleges

Established annual orientation for new faculty in the College of Sciences which was expanded to include faculty from three other colleges

## **PROFESSIONAL AFFILIATIONS AND HONORS**

Member of American Society of Agronomy and Soil Science Society of America

Member of the Water Environment Federation

Certified as Soil Scientist by Soil Science Society of America

Sigma Gamma Epsilon (Honorary Geological Fraternity)

## **PUBLICATIONS**

### **Books:**

Rule, J.H. 1994. Topics in Environmental Sciences. Edited by Jurek Szczypa. Marie Curie-Sklodowska University Press, Lublin, Poland. In English and Polish. 130p. NOTE: This book is a compilation of course notes from my Fulbright Lectures.

### **Book Chapters:**

Rule, J.H. 1998. Trace metal cation adsorption in soils: selective chemical extractions and biological availability. In A. Dabrowski (ed), Adsorption and its Application in Industry and Environmental Protection, Vol. II: Studies in Environmental Protection, Studies in Surface Science and Catalysis, Vol 120, Elsevier Sci, Amsterdam, pp:319-349. Invited contribution

### **Papers, Articles:**

- Rule, J.H., D. Hemphill, and J.O. Pierce, 1975. The use of  $^{210}\text{Pb}$  and  $^{109}\text{Cd}$  isotopes in a preliminary study of their uptake and translocation by plants. In Proceedings of Second Annual NSF-RANN Trace Contaminants Conference (1974).
- \*Hemphill, D.D. and J.H. Rule, 1976. Foliar uptake and translocation of  $^{210}\text{Pb}$  and  $^{109}\text{Cd}$  by plants. Proceedings of the International Conference on Heavy Metals in the Environment, Toronto, Canada, 1975, Vol.
- \*\*Rule, J.H. and E.R. Graham, 1976. Soil labile pools of manganese, iron, and zinc as measured by plant uptake and DTPA equilibrium. Soil Science of America Journal, November-December, Vol.40:853-857.
- \*\*Schrader, E.L., Jr., J.H. Rule and W.J. Furbish, 1977. Trace Metal Geochemistry of a Fluvial System in Eastern Tennessee Affected by Coal Mining. Southeastern Geology, Vol. 18, No.3:157-172.
- Darby, D.A., B. Drake, J.H. Rule and K. Zauderer, 1978. Physical Geology. Audio-Tutorial Laboratory Manual 188 p.
- \*\*Rule J.H., 1979. Municipal Landfill Leachate in the Ground and Surface Water, Chesapeake, Virginia: I. Heavy Metals. J. Environ. Health, July/August, 1979.
- Rule, J.H., 1980. Introductory Soils: A Laboratory Manual. Old Dominion University, Norfolk, VA, Summer 1980.
- Alden, R.W., D.M. Dauer and J.H. Rule, 1982. Environmental Studies at a Proposed Mid-Atlantic Dredged Material Disposal Site. Oceans, Sept., 1034-1041.
- \*\*Rule, J.H., 1985. Chemical Extractions of Heavy Metals in Sediments as Related to Metal Uptake by Grass Shrimp (*Palaemonetes pugio*) and Clam (*Mercenaria mercenaria*). Archives of Environmental Contamination and Toxicology, vol.14:749-757.

- \*\*Rule, J.H., 1986. Assessment of trace element geochemistry of Hampton Roads Harbor and lower Chesapeake Bay area sediments. *Environmental Geology*, Vol. 8, No.4:209-219.
- \*\*Rule, J.H. and R.W. Alden III, 1990. Cadmium Bioavailability to Three Estuarine Animals in Relation to Geochemical Fractions of Sediments. *Archives of Environmental Contamination and Toxicology*, Vol. 19:878-885.
- \*\*Wojciechoski, I., A. Gorniak, and J.H. Rule. 1990. Influence of Humic Substances from Adjacent Marshes on Littoral Water in Two Lakes in the Leczynsko-Wlodawskim District. *Ecological Areas in Agricultural Environments*. Vol. 39:107-123 (in Polish).
- Rule, J.H., 1991. Environmental contamination by metallic elements in the United States. *Proceedings of the Seminarium: Heavy Metals in the Natural Environment*, Lublin, Poland, May, 1991. pp. 39-43 (In Polish). Invited Paper.
- \*\*Alden, R.W. III and J.H. Rule, 1991. Uncertainty and Sediment Quality Assessments: II. Effects of Correlations between contaminants on the interpretation of Apparent Effects Threshold Data. *Environmental Toxicology and Chemistry* 11:645-651.
- \*\*Rule, J.H. and R.W. Alden III, 1992. Partitioning of Cd in geochemical fractions of anaerobic estuarine sediments. *Estuarine, Coastal, and Shelf Science* 34:487-499.
- \*\*Rule, J.H., 1994. Use of Small Plants as Phytomonitors with Emphasis on the Common Dandelion, *Taraxacum Officinale*. In: Adriano, D.C., Chen, Z. and Yang, S. (eds) *Biogeochemistry of Trace Elements, Environmental Geochemistry and Health*, Special Issue, Vol. 16:627-654. Invited Paper.
- \*\*Rule, J.H. and R.W. Alden III, 1996. Interactions of Cd and Cu in anaerobic estuarine sediments: I. Partitioning in geochemical fractions of sediments. *Environmental Toxicology and Chemistry*. 15 (No. 4):460-465.
- \*\*Rule, J.H. and R.W. Alden III, 1996. Interactions of Cd and Cu in anaerobic estuarine sediments: II. Effects on body burdens and respiration rates of test organisms. *Environmental Toxicology and Chemistry*. 15 (No. 4):466-471.
- \*\*Rule, J.H. and D.C. Adriano, 1997. Plant uptake and geochemical phase distribution of Cd, Pb and Zn from soils after application of baghouse dust from the electric arc furnace production of steel. *Proceedings of the Third International Conference on the Biogeochemistry of Trace Elements*, Paris, France, May 15-19, 1995.
- \*\*Rule, J.H. and M.S. Iwashchenko, 1998. Mercury concentrations in soils adjacent to a former chlor-alkali plant. *Journal of Environmental Quality*. 27:31-37.
- \*\*Rule, J.H., 1998. Site Investigations for Inorganic Element Contamination Utilizing Selective Soil Extractions and Phytomonitors. *Proceedings of Second International Conference on Element Cycling in the Environment: Bioaccumulation-Toxicity-Remediation*. Invited contribution
- \*\*Martin, S, C. Zhu, J. Rule, N.T. Nuhfer, R. Ford, S. Hedges and Y. Soong, 2005. A high-resolution TEM-AEM, pH titration, and modeling study of Zn<sup>2+</sup> coprecipitation with ferrihydrite. *Geochimica et Cosmochimica Acta* 69 (N0. 6) 1543-1553.

\*Chosen as one of 124 papers to be published from a total of 405 presented at conference.

\*\*Refereed article

#### **Technical Reports:**

Authored or co-authored over 70 technical reports.

#### **CONFERENCE PRESENTATIONS:**

Over 20 presentations at national or international conferences. Selected presentations are listed below.

Environmental Contamination by Metallic Elements in the United States. Seminarium: Heavy Metals in the Natural Environment, Lublin, Poland, May, 1991. Invited Presentation.

Feasibility of using the common dandelion plant, *Taraxacum Officinale* Webber, as an environmental indicator of trace metal content of soils. Second International Conference on the Biogeochemistry of Trace Elements in the Environment, Taipei, Taiwan, September 12, 1993.

Trace element concentrations in surficial soils and their geochemical fractions in National Parks in Poland. 3rd International Symposium on Environmental Geochemistry, Krakow, Poland, September 12-15, 1994.

Plant uptake and geochemical phase distribution of Cd, Pb and Zn from soils after application of baghouse dust from the electric arc furnace production of steel. Co-author with Domy C. Adriano, Savannah River Ecology Laboratory, University of Georgia, Aiken, SC. Third International Conference on the Biogeochemistry of Trace Elements, Paris, France, May 15-19, 1995.

Site investigations for inorganic element contamination utilizing selective soil extractions and phytomonitors. Second International Conference on Element Cycling in the Environment: Bioaccumulation-Toxicity-Remediation, Warsaw, Poland, October 27-29, 1997. Invited presentation.

Rule, J.H. and Martin, S. Effect of Fe oxides on the bioavailability of trace metals in biosolids. Fifth International Conference on the Biogeochemistry of Trace Elements, Vienna, Austria, July 11-15, 1999. Paper placed into Invited Symposium.

Rule, J.H. Solid phase partitioning of cadmium in biosolid treated soils as a function of metal concentration and iron oxide addition. Cadmium in the Environment: Ecological and analytical problems. A Symposium series organized by the committee of Man and Biosphere, the Committee of Analytical chemistry of the Polish Academy of Sciences, the Institute of Soil Science and Plant Cultivation in Pulawy and the Institute of Agriculture and Food Biotechnology in Warsaw. October 26-27, 1999, Warsaw, Poland. Invited poster presentation.

## **RESEARCH GRANTS AND CONTRACTS**

Rule, J.H., 1974-75. Principal Investigator, National Science Foundation - RANN. Effect of Coal Mining on the Distribution of Toxic Metals in Streams. \$26,624.

Rule, J.H., 1975-76. Principal Investigator, Energy Resource Development Administration (ERDA). Distribution of Heavy Metals in Sediment of Strip Mine Watershed Streams. \$32,410.

Rule, J.H., 1976. Co-Principal Investigator, Energy and Environmental Systems Division, Argonne National Laboratory. Evaluation of Volumes, Characteristics, and Potential Environmental Impacts of the Mine Wastes and Effluents of Two Coal Strip Mine Localities in East Tennessee. \$13,406.

Rule, J.H., 1976 (summer). Principal Investigator. Energy Resource Development Administration (ERDA). Distribution of Heavy Metals in Sediments of Strip Mine Watersheds. \$18,000.

Rule, J.H., 1976-77. Principal Investigator, National Science Foundation - RANN. Physico-Chemical Reactions of Metals in Petroleum with Beach Sediments. \$56,000.

- Rule, J.H., 1978. Summer Research Grant from the ODU Senate Research and Publications Committee. Heavy Metals in the Soil and Groundwater Near a Municipal Landfill. \$2,900.
- Rule, J.H., 1978. Co-Principal Investigator, NASA Task #54, Eastern Shore Remote Sensing Ground Truth Station Data. \$2,480.
- Rule, J.H., 1978-79. Co-Principal Investigator, NOAA Ocean Dumping Program, Rockville, Maryland. An Assessment of the Ecological Impact of Open Ocean Disposal of Materials Dredged from a Highly Industrialized Estuary. R.W. Alden, D.M. Dauer, (Biological Sciences). (Total = \$138,238; Rule = \$21,606.)
- Rule, J.H., 1979-80. Co-Principal Investigator, Environmental Biology-Ecosystem Studies Division of NSF. Litter Nutrient Turnover and Decomposition Rates in a Stressed Peat Swamp Ecosystem in Virginia. F.P. Day (Biological Sciences). (Total = \$69,993; Rule = \$23,430.)
- Rule, J.H., 1980. Co-Principal Investigator, NOAA Ocean Dumping Program, Rockville, Maryland. An Assessment of the Ecological Impact of Open Ocean Disposal of Materials Dredged from a Highly Industrialized Estuary. R.W. Alden, D.M. Dauer, (Biological Sciences). (Total = \$94,949; Rule = \$12,850.)
- Rule, J.H. and R.W. Alden, III, 1980. Summer, addition to NOAA Grant: Environmental Quality of Dredge Spoils from the Craney Island Disposal Site. 3 months duration. \$14,458.
- Rule, J.H., R.W. Alden, III, D.M. Dauer, 1981. An Assessment of the Ecological Impact of Open Ocean Disposal of Materials Dredged from A Highly Industrialized Estuary: Monitoring of the Environmental Quality of a Proposed Coastal Water Disposal Site for the Northeast Monitoring Program. 11 months duration, \$130,000 (Rule = \$20,993).
- Rule, J.H. and R.W. Alden, III, 1981. An Assessment of the Ecological Impact of Open Ocean Disposal of Materials Dredged from A Highly Industrialized Estuary: A Preliminary Survey of the Biological and Chemical Effects of Spoils from Craney Island, An Onshore Disposal Facility. Addendum to NOAA Grant. 9 months duration. \$39,980.
- Rule, J.H., D.A. Darby, R.A. Alden, III, C.H. Blair, 1981. An Assessment of the Ecological Impact of Open Ocean Disposal of Materials Dredged from A Highly Industrialized Estuary: Hopper-Dredge Test Dump - Monitoring at the Norfolk Disposal Site. 5 months duration, \$24,994 (Rule = \$13,172).
- Rule, J.H., R.W. Alden, III, D.A. Dauer, R.S. Birdsong, H.G. Marshall (Department of Biological Sciences), 1982-84. Open Contract with the Norfolk District U.S. Army Corps of Engineers. Total contract = \$730,659.
- Rule, J.H., 1982. Environmental Studies for the Proposed Norfolk Harbor Deepening and Disposal Within the Norfolk District, U.S. Army Corps of Engineers, October 15, 1982 - September 30, 1983. Rule = \$41,204.
- Rule, J.H., 1983. Environmental Studies for the Proposed Norfolk Harbor Deepening and Disposal Within the Norfolk District, U.S. Army Corps of Engineers, October 1, 1983 to September 30, 1984. Rule = \$26,208.
- Rule, J.H., 1984. Atmospheric Studies in Hopewell, Virginia - Phase II. Contract with the City of Hopewell, Virginia, with partial funding from the Virginia Environmental Endowment. August 1983-March 1985. \$46,220.
- Rule, J.H., 1984. Effects of Water Column Depletion of Oxygen During Dredging in Thimble Shoal Channel, Chesapeake Bay. Part of a Larger Report to the Virginia Department of Highways and Transportation. August 1984. Rule = \$1,500.
- Rule, J.H., 1985-1987. Monitoring Program for Dredge Sites Associated with the Construction of I-664. Participation in \$1 million Grant to AMRL as member of Technical Advisory



- Group and Supervisor for Metals Analyses. Devoted 50% of time during academic year. \$30,000.
- Rule, J.H., 1987-1989. Second grant for continuation of Monitoring Program for Dredge Sites Associated with the Construction of I-664. Participation in \$1 million Grant to AMRL as member of Technical Advisory Group and Supervisor for Metals Analyses. Devoted 50% of time during academic year. \$30,000.
- Rule, J.H., 1989-90. Co-Principal Investigator of a team conducting site assessments for possible contamination of properties for the Virginia Department of Highways and Transportation
- Rule, J.H. and R.W. Alden III, 1989-90. Project Coordinator and Principal Investigator for the Preparation of a Proposal for the Virginia Department of Transportation: A Site Characterization for the VDOT Allison Gap Road Construction Project, Saltville, VA. Submitted to VDOT, Virginia Department of Waste Management and Region III, EPA, for Technical approval before submitting formal proposal with budget.\$41,433.
- Rule, J.H., 1990-91. Co-Principal Investigator of a team conducting site assessments for possible contamination of properties for the Virginia Department of Highways and Transportation
- Rule, J.H., 1990. Principal Investigator for: Site Characterization Study for the VDOT Allison Gap Bridge Construction Project, Saltville, Virginia. \$210,000.
- Rule, J.H., 1991-92. Co-Principal Investigator of a team conducting site assessments for possible contamination of properties for the Virginia Department of Highways and Transportation
- Rule, J.H., 1992-93 Co-Principal Investigator of a team conducting site assessments for possible contamination of properties for the Virginia Department of Highways and Transportation
- Rule, J.H., 1993-94 Co-Principal Investigator of a team conducting site assessments for possible contamination of properties for the Virginia Department of Highways and Transportation
- Rule, J.H. 1994. Uptake of trace metals by dandelions and ragweeds from soils contaminated with metal flue dust. Summer Research Proposal submitted to the University of Georgia, Savannah River Ecology Laboratory, Summer Research Program for Visiting Scientists. \$15,250 for Summer Salary and associated research costs.
- Rule, J.H., 1994-95. Co-Principal Investigator of a team conducting site assessments for possible contamination of properties for the Virginia Department of Highways and Transportation
- Rule, J.H., 1995-96. Co-Principal Investigator (with A.A. Nowroozi and G.R. Whittecar) Determination of salt-water intrusion into freshwater aquifers in the Eastern Shore of Virginia using electrical resistivity methods. Virginia Water Resources Research Center. \$10,000.

## **THESIS AND GRADUATE RESEARCH DIRECTED**

University of Tennessee, Knoxville, Department of Geological Sciences:

From 1974 to 1977, directed three theses and served as a committee member on four additional theses.

Old Dominion University:

Directed 16 M.S. theses and non-thesis research projects and served on over 22 M.S. and Ph.D. committees

## **PROFESSIONAL SERVICE**

### **Proposals Reviewed:**

Reviewed numerous research proposals for program directors of National Science Foundation, Electric Power Research Institute, Maryland Sea Grant Program, Hudson River Foundation

### **Papers Reviewed:**

Reviewed 19 research papers for the journals: Soil Science Society of America Journal, Virginia Journal of Science, The Archives of Environmental Contamination and Toxicology, Estuarine, Coastal and Shelf Science, Water, Air and Soil Pollution and Environmental Toxicology and Chemistry.

### **Books/Chapters Reviewed:**

Reviewed several book or book chapter manuscripts for Sanders College Publishing, Macmillan Company, Advances in Environmental Sciences and John Wiley & Sons, Inc. Reviewed 10 chapters of a new book: Trace Elements: From Soil to Man, to be published by Springer, at the request of the author.

## **COMMUNITY SERVICE**

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| 1995-96        | Participant in community workshop for the Lake Lawson/Lake Smith Watershed Strategic Planning Sessions   |
| 1995-96        | Participant in Owl's Creek Watershed Advisory Council as representative of College of Sciences; provided input into the design of proposed water and sediment analysis in Owl's Creek and expressed support of the College for the studies to be conducted by the AMRL |
| 1995-99        | Member of the Lake Lawson/Lake Smith, Virginia Beach, Watershed Strategic Planning Committee   |
| 1999-2001      | Coordinator of the Lake Lawson/Lake Smith, Virginia Beach, Watershed Strategic Planning Committee<br>Edited Quarterly Newsletters  |
| 2001 – present | Cypress Point Civic Club, Environmental Committee Chair<br>Lead the local lake effort for Clean the Bay Day  |
| 2003-present   | Member of the Board of Directors of the Elizabeth River Project (ERP)  |
| 2005           | Chair of the regional Technical Advisory Committee to the Elizabeth River Restoration Trust  |