

**Education/Credentials**

B.S., Biology (Chemistry Minor), Northern Illinois University, 1963

M.S., Zoology, Northern Illinois University, 1965

Graduate Study toward Ph.D. in Zoology (Ichthyology), University of Texas at Austin, 1965-1970

IFIM Certification

**Areas of Relevant Expertise**

Aquatic Ecology

Estuarine Ecology

Threatened/Endangered Species

Regulatory Permitting Assistance

Water Quality Impact Mitigation

Habitat Creation/Enhancement

**Years of Experience**

With This Firm: 20

With Other Firms: 18

**Relevant Experience Summary**

- Aquatic Ecology
- EA/EIS
- Estuarine Ecology
- Threatened/Endangered Species
- Ecological Risk Assessment
- Section 404/10 Permitting Assistance
- NPDES/TPDES
- Mitigation
- Public Participation
- Expert Testimony
- Water Rights Permit Assistance
- Surface Mining Permit Assistance
- Minimum Flow Requirement
- Water Quality
- Fisheries

**Experience Summary**

Mr. Wiersema is a co-founder of Horizon<sup>TM</sup> and an aquatic and estuarine ecologist who has managed multidisciplinary baseline data development and/or impact assessments for reservoir, ports, mining, transmission line, pipeline, roadway, and industrial projects throughout the southwest, midwest, and southeast U.S. He has extensive field experience in such diverse habitats as reservoirs, major rivers, streams, marshes, playas, and coastal embayments. Mr. Wiersema has performed baseline and/or impact assessment projects in every major river basin and estuarine system in Texas. Mr. Wiersema holds an Instream Flow Incremental Methodology Certificate (IFIM) for training received at the National Ecology Research Center, Colorado State University. He has prepared instream flow requirement estimates for ten reservoirs and freshwater inflow requirements for four major Texas coastal bays. He has negotiated and prepared wastewater discharge permits for a variety of projects, including power plants, industrial manufacturing facilities, and wastewater treatment plants. He has performed baseline and impact assessment studies and provided permitting and mitigation services on numerous reservoir and surface mining projects in Texas and Louisiana. Mr. Wiersema has performed numerous baseline aquatic projects requiring sampling and analyses of phytoplankton/macrophytes, zooplankton, macroinvertebrates, benthos, and fish. Studies have included energy flow through trophic levels and over geographic areas, population estimates and effects assessment of point source discharges, reduced flow, altered flow, and habitat alteration. He has provided expert testimony on over 40 occasions at permits hearings or meetings for NPDES, state water quality, water rights, Section 404/10, and RCT brine disposal permits. He has testified in Federal Court in the Edwards Aquifer Endangered Species lawsuit. Mr. Wiersema has managed over 150 multidisciplinary projects and provided technical input on over 400 projects during his 35+ years as an ecological consultant.