

Terence P. Boyle

Environmental Consulting Services

Design of Large Scale Assessment/Planning Projects

Analysis of Environmental Data

Proposal/Report Writing

Multidisciplinary/Interdisciplinary Team Participation

Areas of Expertise

Environmental Impact Analysis

Ecological Risk Assessment

Water Quality Evaluation

Assessment of Environmental Contaminants

Experience

International

Latin America (Argentina, Bolivia, Brasil, Chile, México, Nicaragua
Paraguay, Perú, & Uruguay) *I am fluent in Spanish*

Asia (Mongolia, Philippine Republic, & Russia)

UNESCO World Heritage Program

Ramsar International Wetland Convention

IUCN International Union for the Conservation of Nature

Extensive past participation in the Fulbright Fellowship Program

Domestic (U.S.)

Department of Interior (USGS, National Biological Survey, Fish &
Wildlife Service, Service, National Park Service, Bureau of Land
Management, Bureau of Reclamation)

Environmental Protection Agency

State of Colorado

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Dr. **TERENCE BOYLE** received his Ph.D. from the University of Arizona in 1979. He has more than 100 scientific publications including three books on various aspects of applied ecology, ecotoxicology, and environmental science. He was adjunct faculty in the Graduate Degree Program in Ecology, Colorado State University where he taught the graduate level course, "Ecological Risk Assessment". He was the Editor of the International Journal *Environmental Toxicology and Chemistry* from 1997-2001. Dr. Boyle was one of the inaugural Editors of the new journal *Integrated Environmental Assessment and Management* published by the Society of Environmental Toxicology and Chemistry. He has been on International Boards for the American Association for the Advancement for Science,

Ecological Society of America, and Society for Environmental Toxicology and Chemistry; a member of the U.S. Man and the Biosphere Temperate Ecosystem Directorate, and on the World Commission on Protected Areas, International Union for the Conservation of Nature, Gland, Switzerland since 1991. In 1990-1 he was a member of the UNESCO Team that evaluated and recommended the inclusion of Lake Baikal, Russia into the World Heritage System. He has had projects in Argentina, Bolivia, Brazil, Paraguay, Uruguay, Russia, and the Philippines. He has been member of the Technical Task Force for Water Quality Standards for the State of Colorado, and a member of a number of program reviews for the U.S. Environmental Protection Agency. In November 2001 he was a member of the International Team to assess threats to the Ramsar Site, Laguna Llanquanelo in Mendoza. He has received two awards from the USGS for outstanding service, letters of commendation from the Dr. Albert Yates, President of Colorado State University for international work, Dr. Roberto Page, President of the Servicio Geológico Minero Argentino for his work in Argentina, and Dr. Charles Groat, Director of the USGS.

His immediate past activities have included lectures and research projects under a Senior Research Fulbright Fellowship to Argentina in 2002. On April 2002 he was the co-organizer of the AAAS/USGS La Plata Project Workshop on Ecosystem Dynamics for Essential Human Needs held in Buenos Aires funded by the NSF Biocomplexity Program. In 2003 he completed a Senior Specialist Fellowship from the Fulbright Program to work with the Servicio Geológico Minero Argentino to develop a guideline for ecological risk analysis for mining. He co-organized the 24-paper session "Environmental and social effects of mining", in September 2004 at the Science for Watershed Conservation, Ulan Ude, Russia and Ulanbaatar, Mongolia. He was also the featured speaker at the both Plenary sessions in both Ulan Ude and Ulanbaatar. In February of 2005 he was invited as "Distinguish Scientist" by the National Council of Science and Technology of Argentina to speak at the Symposium of High Andean Wetlands in Salta, Argentina. In October of 2005 he was the invited Plenary Speaker at the SETAC Latin America Meeting in Santiago de Chile. He was recently awarded a Senior Specialist Fellowship from the Fulbright Program to implement a program of Ecotoxicology at the National University of Paraguay in Asuncion, March/April 2006. He is currently also at work on, "GUIDELINES FOR ASSESSING THE ECOLOGICAL AND SOCIAL EFFECTS FROM MINE DEVELOPMENT: A scheme for the use of risk analysis to evaluate the potential effects of mining on the social and natural environment", to be submitted to the International Journal "*Risk Analysis*"

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RECENT PUBLICATIONS INCLUDE:

- Boyle, T. P. 2000. Use of risk assessment to evaluate effects and plan remediation of abandoned mines. *Proceedings of the Seventh International Conference on Tailing and Mine Waste* pp 461-466.
- Boyle, T.P. and G. Gustina. 2000. A Strategy for Use of Multivariate Methods of Analysis of Benthic Macroinvertebrate Communities to Assess Mine-Related Ecological Stress. Pp. 1425-1431 In *Proceedings From the Fifth International Conference on Acid Rock Drainage Meeting*. Denver, Colorado.
- Petty, J.D., S.B. Jones, J.N. Huckins, W.L. Cranor, J.T. Parris, T.B. McTague, T.P. Boyle. 2000. An approach for assessment of water quality using semipermeable membrane devices (SPMDs) and bioindicator tests, *Chemosphere* 41 (3): 311-321.
- Plumlee, G.S., R.A. Morton, T.P. Boyle, J.H. Medlin, and J. Centeno. 2000. An Overview of mining-related environmental issues, Marinduque Island, Philippines USGS 00-397. 466p
- O'Shea, T.J., D.R. Clark, and T.P. Boyle. 2001. Impacts of mine related contaminants on bats. In *Proceedings of Bat Conservation and Mining: A technical interactive Forum*, K.C. Vories and D. Throgmorton (Eds). St Louis MO. Pp 204-215.
- Boyle, T.P. and M. Strand. 2001. The Status of the Macroinvertebrate Community in the St. Croix River MN & WI: An Examination of Ecological Health Using Techniques of Multivariate Analysis. *Aquatic Ecosystem Health & Management* 4:311-325.
- Boyle, T.P. and M.J Strand. 2003. An analysis of the physical and chemical variables associated with changes in the community structure of the benthic macroinvertebrate community of the North and East Forks of the Virgin River, UT. *Western North American Naturalist*. 63: 155-166
- Boyle, T.P. and H. Fraleigh. 2003. "Natural and Anthropogenic Factors Affecting the Structure of the Benthic Macroinvertebrate Community in Southwestern effluent dominated stream." *Ecological Indicators* 3: 97-117.
- Plumlee, G. S., T. P. Boyle, R. S. Carr, M.J. Logsdon. 2003. *Marcopper Mine Tailings Spill: Assessment of the Engineering and Human and Environmental Health Remediation Strategies for Marinduque Province, Philippines PART C: Review of Available Literature on Mining-Related Environmental and Ecological Issues, Marinduque Island, Philippines*. The FUTURES Group International, Wnuk, C. editor, working in cooperation with USGS. 229 pp.
- J. Abel, T. P. Boyle, R. S. Carr, J. A. Centeno, C. P. David, H. Gibb, M. J. Logsdon, J. Longacre, J. Madson, H. Miller, 2004 *Marcopper Mine Tailings Spill: Assessment of the Engineering and Human and Environmental Health Remediation Strategies for Marinduque Province, Philippines - Report on the Results of Phase II: Plans for Monitoring and New Data Gathering*, The FUTURES Group International, Wnuk, C. editor, working in cooperation with The United States Geological Survey 72 pp.
- J. Abel, T. P. Boyle, R. S. Carr, J. A. Centeno, C. P. David, H. Gibb, M. J. Logsdon, J. Longacre, J. Madson, H. Miller, 2004. *ENGINEERING, HEALTH AND ENVIRONMENTAL ISSUES RELATED TO MINING ON MARINDUQUE: Final Report of the Independent Assessment Team*. The FUTURES Group International, Wnuk, C. editor, working in cooperation with The United States Geological Survey. 479 pp.
- Boyle, T.P., S.M. Caziani, and R.G. Waltermire. 2004. LANDSAT TM INVENTORY AND ASSESSMENT OF WATERBIRD HABITAT IN THE SOUTHERN ALTIPLANO OF SOUTH AMERICA. *Wetland Ecology and Management* 12: 563-573.
- Christopher Wnuk, J. Abel, T. P. Boyle, R. S. Carr, J. A. Centeno, C. P. David, H. Gibb, M. J. Logsdon, J. Longacre, J. Madson, H. Miller. 2008. Future risk, human health, and environmental impacts of acid rock drainage from Marcopper mine spoils and tailings on Marinduque Island, the Philippines. Submitted to *Environmental Health Perspectives*

*Full resume and references available upon request.