

## BIOGRAPHICAL SKETCH

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### **Academic Preparation**

**2002 - 2004 Ph.D. Candidate Arkansas State University Completion: May 7 2004**

**2000 - 2002 PhD Student Arkansas State University**

**Dissertation Proposal: ?Linkages between Hydrology and Essential Fish Habitat: Spring River, Arkansas?**

**2000 - 1997 M.S. ? Biology Appalachian State University**

**MS Thesis: ?Survey of Gastrointestinal Helminthes in Small Mammals in Watauga County, NC and Changes in Parasite Populations Due to Changes in Host Species and Changes in the Season?**

**1994 ? 1993 B.S. ? Biology Lenoir-Rhyne University**

**Undergraduate Research Thesis: ?The Caloric Content of Wild and Captive Bears Diet and the Difference in Calories Used by Captive Bears and Wild Bears?**

### **Professional Experience**

**2003 - present Water Rock Life Lab ? (Post Doc) Project Manager: CRUI: Environmental Life History of Freshwater Fish Using Otolith Microchemistry (supervise students, otolith microchemistry, essential habitat identification, community structure and assessment)**

**2001 ? 2004 Environmental Science Program ? Graduate Assistant (lecture ? chemistry, biology, and geology; research - metal contamination of soils and crops (Moldova ? Civilian Research Defense Fund Grant), metal analysis of fish otoliths and fish tissue, age and growth, identification of essential fish habitat, fish community assessment and trophic structuring, water and soil chemistry analysis, plant chemistry analysis, and water and tissue isotope analysis).**

**2001 ? 2004 Southern Ecological Services - Environmental Consultant (fishery assessment, habitat assessments, wildlife surveys and enhancements, management reports, bird survey and trapping, waterfowl assessment and habitat enhancement, upland game survey and habitat enhancement, quality deer management, and predator control).**

### **Publications**

#### **Conference Proceedings**

**Bickford, N., Hannigan, R., and Bogdevich, O. 2003. Otolith Microchemistry of Freshwater Fish: Stock Discrimination of Brown Trout and Walleye. Proceedings of the Sixth International Symposium and Exhibition on Environmental Contamination in Central and Eastern Europe and the Commonwealth of Independent States. Prague, Czech Republic. In Press.**

**Bickford, N.A., and Hannigan, R.E. 2003. End-Member Mixing Analysis: Application To The Spring River, AR. Proceedings of the Arkansas Water Resources Center Annual Conference, April 2003. 54-61.**

#### **Journal Articles**

**Bouldin, J.L., Bickford, N.A., Guha, G., and Stroud, B. 2004. Tailwater recovery systems**

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for irrigation ?benefit/cost analysis and water resource conservation technique in Northeast Arkansas. *Journal of the Arkansas Academy of Science* 58: 27-36.

Christian, A.D., Bouldin, J., Bickford, N., McCord, S., Sako, A., and Farris, J. 2003. Winter and spring water quality of the Big Creek Watershed, Craighead County, Arkansas: nutrients, habitat, and macroinvertebrates. *Journal of the Arkansas Academy of Science* 57: 27-36.

Sako, A., O'Reilly, C.M., Hannigan, R., Bickford, N., and Johnson, R.L. In Review. Stock identification of two clupeid species, *Stolothrissa tanganicae* and *Limnothrissa miodon* in Lake Tanganyika using otolith microchemistry. *Geochemistry: Exploration, Environment, Analysis* 5:

Hannigan, R.E. and Bickford, N.A. 2003. Hydrochemical Variations In A Spring-Fed River, Spring River Arkansas. *Environmental Geoscience* 10 (4): 167-188.

Bickford, N.A., Hamilton, B.T. and Hannigan, R.E. 2004. Trace element chemistry of fish tissues: Uptake routes in genus *Moxostoma*. *Environmental Geoscience* 11(2): 226-236.

### Manuscripts in Preparation

Bickford, N., and Hannigan, R. Stock identification of native and non-native Brown Trout in the Spring River, Ar. Submitted to North American Fisheries Management.

Bickford, N., and Hannigan, R. Affects of juvenile fish growth on otolith microchemistry. Submitted to North American Fisheries Management.

Bickford, N., and Hannigan, R. Variation in trace metals in a spring fed river, Spring River Arkansas. Submitted to Aquatic Geochemistry.

Bickford, N., and Hannigan, R. Elemental mapping of otoliths by laser ablation ICP-MS. Submitted to the *Journal of Analytical Atomic Spectrometry*.

Bickford, N., and Hannigan, R. Identifying essential habitat of Largemouth Bass (*Micropterus salmoides*) using otolith chemistry in the Spring River Ar. In preparation for submission to *Transaction of American Fisheries*.

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